SHORT REMARKS ON Dr. PERRY's ANALYSIS,

MADE ON THE

Stratford Mineral WATERS:

WITH A SHORT

ESSAY

BY WAY OF

APPENDIX,

Towards a more perfect Examination into the same *WATERS.*

By WILLIAM BAYLIES, *Jun.*

Næ, ille quidem *hercle' magno conatu,*
magnas nugas dicit [illegible]

DOCTOR's

TO

Dr. *MEAD.*

SIR,

HAD not the Sanction of your Name recommended Dr. *PERRY's Analyſis* of the *Stratford Waters* to the PUBLICK, I ſhould not have preſumed to offer theſe SHEETS to your Protection, being very ſenſible that the Patronage of a GENTLEMAN, ſo *conſpicuous* in his Profeſſion, is what this performance can in no degree Merit: but ſince it appears, by all you have hitherto publiſhed, that the welfare of Mankind is what you earneſtly endeavour to promote, I could not doubt your readineſs to countenance and protect, even in a *Young* and *unexperienced* Writer, what the greateſt AUTHORS have deliver'd for TRUTHS. — For which Reaſon I took the liberty of requeſting your approbation and favour in this *well meant* Eſſay, hoping that it will, in *this Light*, appear to the World with as much Advantage as the

DOCTOR's

DOCTOR's. And the Honour you do me in receiving it, will be an Obligation that I can no otherwiſe return, than by this publick Acknowledgement of the ſame, and by Subſcribing myſelf with the greateſt Submiſſion and Gratitude,

Honoured SIR,

Your moſt Obliged,

Humble Servant,

W. BAYLIES, *Jun.*

Eveſham, *June* 1745.

SHORT REMARKS ON Dr. *PERRY*'s ANALYSIS MADE ON THE *Stratford* Mineral WATER.

IT may be thought Audacious in a Perſon of *my Age*, to enter the Liſts with a GENTLEMAN, who has Publiſh'd *many Volumes*. But if the deſire of *Fame* is a Vanity Excuſable in the *Doctor*, who has travel'd thro' *Ægypt*, and long ſince paſt the Meridian of Life, it muſt be much more ſo in ſuch a Youth as *I am*: Therefore as 'tis Evident the *Doctor* wrote in order to recommend *himſelf*; why may not I write with the ſame View?

——*Tentanda via eſt, qua me quoq; poſſim, Tollere humo.* Virgil.

I don't pretend to Cenſure the *Doctor*'s * View of the *Levant*, becauſe I was never there; but when he writes about *Chymiſtry*, and Thing, which I have often been compell'd to *Sweat* at, the Queſtion is whether I ſhall believe the *Doctor*, or my *Senſes?* and that Queſtion will be eaſily Anſwered, when I acquaint my READERS, that it is ſome Time ſince I enter'd my Self of the SPECTATORS SOCIETY, every Member of which inſtead of Conſidering things as they are *repreſented*, is Reſolved to know them, as they *really are*, and to avoid falling into Errors in their Search after Truth, have Sign'd the following Form of an Aſſociation; which may expreſs their Intentions in the moſt Plain and Simple Manner.

† "*We whoſe Names are hereunto Subſcribed do ſolemnly declare, That we do in our Conſciences believe* two *and* two *make* four, *and that we ſhall adjudge any Man whatſoever to be our Common Enemy, who Endeavours to perſwade us to the Contrary*, &c".

As to the Inaccuracies of Stile which are to be met with in almoſt every *Page* of the

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* See the Miſcellaneous Correſpondence, N°. 2. in which the *Doctor*'s View of the *Levant* is excellently Criticized.

† Mr. *Addiſon*'s SPECTATOR. N°. 126.

Doctors

Doctors Book, they are excuſable in a *Gentleman*, who by living ſo long in *foreign Countries*, may have forgot the Strength and Beauty of our *Language*, and therefore I ſhall take no further Notice of them, than to obſerve, that in this Country he might eaſily have got ſome *learned*, and *good-Natur'd Clergyman* to have reviſed his *Manuſcript*.

But I believe no one will think it excuſable for any Man wilfully to commit a Fact, which in his own Conſcience he believes to be quite Oppoſite to common *Juſtice* and *Honour*, and under the Condemnation of his *own Pen*, which is a Crime the *Dr.* convicts himſelf of, by dedicating his *Book* to Dr. *MEAD* without his Permiſſion, and begins his Addreſs with theſe Words.

SIR,

" I am now treſpaſſing againſt one of my " own Maxims: For *I am*, and long have " been, of Opinion, that the dedicating " Works to great and celebrated Perſons, " without their *Licence*, is a real *Inſult* of- " fer'd them: And is, in Fact, near a-kin to " *Petty Forgery*".

Can any one, who is a Friend to the Doctor *read this part of his* Book, *without a Bluſh for the Tranſgreſſor?*

The *Doctor* begins with a lively Deſcription of the SPRING, the Water of which he tells us riſes *Perpendicularly* out of the Earth; and that his *Engliſh* READERS may rightly underſtand, what he means by Perpendicularly, he adds in Latin, * *a Profundis in Altum.* Right! a *Phyſician* ſhould be Maſter of Latin; but that is not all, this *Gentleman* ſhews us in a few Pages after, he would be thought Maſter alſo of *Phyloſophy* and the *Mathematicks*; he tells us in an high Newtonian Strain, how the Native Salts of the Water are found, *viz.*

† "In the ſecond Pit (upon ſearching it to
" the Bottom ſome Time ago) they found
" a conſiderable Quantity of a hard com-
" pact Salt, which looked reſplendent, like
" *Iſinglaſs.* And it ſeems this Salt, or ſaline
" Matter, had, when firſt taken out, a
" *Toughneſs* with it; in that, alſo, ſome-
" what reſembling *Iſinglaſs.* Hence I infer,
" and conclude, that the Water in the ſe-
" cond Pit, lying expoſed to the Sun, (whilſt
" its Waſte, cauſed by the Sun's Exhalation,
" was continually ſupplied by the Overflow-
" ings of the other Pit) became ſaturated,
" or overcharged, with the Salts. And

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* See the *Doctor's* BOOK, Page, 1.

† ——————— Page 5, and 6.

" hence,

" hence, [*now for Philoſophy,*] the ſaline " Particles coming into a nearer Contract " with each other, aggregated and coaleſ- " ced. And then, their gravitating Powers " being increaſed, (and this, as well as o- " ther Properties of Matter, will always be " found to increaſe [*now for Mathematicks*] " in a ſeſquialterate Ratio to the circumfer- " ential Increaſe of the Matter itſelf, and in " a triplicate Ratio to its diametrical In- " creaſe) they ſubſided to the Bottom; " carrying with them ſome vilcid, tenacious " Matter, or Liquid, which adhered to them. " Some of this Salt being ſent me, I examin- " ed it, not only by the naked Eye, but by " the Help of Optic Glaſſes, and I found " its conſiſtant Parts to be *long* and *flakey*, " ſomewhat reſembling, in that Particular, " the *Talcum venetianum*, and *Alumen plu- " moſum*".

What Pity is it, the *Doctor* ſhould thus Labour with ſo great a Profuſion of *Philoſophical* and *Mathematical* Learning, to contradict himſelf. Here he tells us, the Native Salts of the Water form themſelves into *flakey Criſtals* at the Bottom of the ſecond Pit, (tho' they are continually moved by the overflowing of the firſt Pit,) reſembling in Figure the *Alumen plumoſum*, or *Talcum venetianum*; and in his Obſervation on his Sixth

Exper-

Experiment, he ſays, * the Salts of this Water *do not ſhoot into Criſtals of any determinate Figure, even when the Water has been Exhalted to a Quarter Part of its Quantity.*

Now I belive there is no one, who is not an utter Stranger to the Laws of Criſtalization, but would think it much more reaſonable to expect Saline Criſtals from the *Evaporated Liquor*, in a State of reſt, than from the *natural Waters*, expoſed to the Action of the Sun only, in an open Pit, where, by the Influx of freſh Waters its waſte is continually ſupply'd, and its *Salts* kept in a continual *Motion.*

But I have not been able by my utmoſt Endeavours to Procure any of this Matter which the *Doctor* calls the *Native Salt*; and from his Deſcription of it, I greatly Queſtion, whether it be a Salt or not; for I know of no Salt that hath ſuch a *Toughneſs*, as in any Degree reſembles *Iſinglaſs.*

The *Doctor*'s Firſt EXPERIMENT.

" I boyled half a Pound of the Earth in " three Pints of Rain Water, 'till near half " of it was conſumed; then I paſſed it

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* See, Page, 27.

through

" through Paper; and I found the filtered " Water reſembled, though faintly, the na- " tural Mineral Water, Indeed, the ſaid " Earth, or Clay, reſembles, both in Smell " and Taſte, the Water which iſſues from " it. I mixed ſome Drops of a Tincture of " *Galls*, with a Glaſs of this Water, but did " not perceive any Change of its Colour".

The Drs. OBSERVATIONS *on his Firſt* EXPERIMENT.

" This Experiment proves that the Earth, " through which the Water paſſes, and by " which 'tis impregnated, is either robbed " of its vitriolic Principle by the Water " (during its Commerce with it, and Paſ- " ſage through it, to the Light) or elſe that " it was deſtroyed and diſſipated by Fire, " on boyling the Glebe, or Earth, in com- " mon Rain Water: For, otherwiſe, had this " Water in which the Earth was boyled, " been thereby imbued with a vitriolic Prin- " ciple, it would then have receiv'd a purple " Tincture from the *Galls*".

REMARK on the *Doctors* firſt Experiment and Obſervation.

As the *Dr.* told us before, that this Water riſes *Perpendicularly* out of the Earth or *a profundis in Altum*, what ſignifies examining

the

Superficial Earth by which the Water was rather *ſtrained* than *impregnated?* The *Salts* contained in the Waters might have been carryed in them from a diſtant place, and our Buſineſs is with the Waters, as they *really are*, and not as one may *fancy them to be.*

The greateſt Uſe I know of this Experiment, is to *enlarge the* BOOK.

The *Doctor*'s Second EXPERIMENT.

" I put four Ounces of the Earth into a " Crucible with another inverted over it, " and well luted. I ſet it in a ſtrong Fire " to Roaſt, for the Space of two Hours: " Then I removed it from the Fire, and ſet " it by to cool: And examining the Matter, " (which I had cauſed to be reduced to a " Powder) I found it to be, in Colour and " Taſte, much like the *Terra-lemnia*, only " that it was ſomewhat Saltiſh. It was di- " miniſhed in Weight, by this Operation, " near a fifth Part. I held a Loadſtone over " it for a conſiderable Time, to ſee if there " was any Iron in it: But the Event proved " that there is no Proportion, either of Iron, " or any ferruginous Matter in it. I then " put ſome Portions of it into ſeperate *China* " Cups: To one I put ſome Drops of Oyl " of *Vitriol*; to another I put ſome Spirit of " *Sal Amroniac*; to the third I put *Ol. Tar-* " *tari per Deliq.* to ſee if any Effervеſcence,

or

" or other remarkable Appearance, might " reſult from it. The Oyl of *Vitriol* cauſed " it to effervescence: The Spirit of *Sal Ar-* " *moniac* produced no ſenſible Effect on it, " but only made it liquify, and run, juſt as " common Water might have done: The " Oyl of *Tartar*, on the contrary, reduced " it into a ſtiff Subſtance, or Paſte.

The Drs. OBSERVATIONS *on his Second* EXPERIMENT.

" This Experiment proves that there is no " Iron, or ferruginous Matter, in the Earth " which this Water pervades before it ſprings " into the Light: Nor, indeed, do any of " the Experiments I have made on the Wa- " ter ſuppoſe it to exiſt in it, in any Propor- " tion. Moreover, the Duct, or Channel, " through which it paſſes, (from the firſt " Pit to the ſecond, and thence-forwards) " ſuppoſes the Negative of it; for this ſame " receives no okery, or ferruginous, Colour " from it.

REMARK on the *Doctors* Second Experiment and Obſervation.

'Tho' this Experiment has no greater Relation to the Waters than the former, I cannot help remarking, that 'twas no Wonder the weight of the Earth after *calcination*

ſhould be leſs than it was before; when all its *Moiſture* was *Evaporated.*

Secondly, If there had been *Iron* or *fixed Vitriol* in the *Earth*, it would not follow that there ſhould be ſuch a groſs Subſtance in the *Water.*

Thirdly, If the *Dr.* had taken any parcel of Earth whatſoever, and calcined it in the fire, it muſt of courſe have fermented with *Oil of Vitriol*, becauſe that is a ſtrong *Acid*, and not have fermented with *Spirit of Salt Armoniac*, or *Oil of Tartar*, becauſe they are *Alkaline*; as the calcined Earth itſelf was.

There is no great CHYMICAL Miſtery diſcovered here.

The *Doctor*'s Third EXPERIMENT

"I put ſome of the native Salt, which "was got from the Bottom of the Pit, (it "being firſt beat ſmall) on a red-hot poliſh-"ed Iron Plate, to ſee if it would produce "any Decrepitation, Detonation, or other "remarkable Phænomenon: But it produc-"ed no other Effect, or Appearance, only "that, at firſt, it hiſſed, and liquified, and "ſoon after turned to a hard black Cruſt, "Then I ſubjected ſome of the ſaline Ex-"tract, or Reſiduum, to the like Experi-"ment, which produced much the ſame "Effect as the other did.

The

The Drs. OBSERVATIONS *on his Third* EXPERIMENT.

" From this Experiment we learn, that " the Salt of this Water, is neither retain- " ing to *Nitre* nor to the Sea, or muriatic " Salt, For the redhot Iron Plate produced " neither Detonation, nor Decrepitation. " Indeed, ſome of the native Salt, (which " was taken out of the ſecond Pit, or Reſer- " voir, and broken into large flakey Parts) " did bounce a little upon the hot Iron " Plate ; but that Effect was owing, doubt- " leſs, to the ſudden Flexure, or Curvity, " of its Parts.

REMARK on the *Doctors* third Experiment and Obſervation.

As I have not been able to procure any of this *Native Salt*, I cannot contradict the Truth of what is here aſſerted, But I muſt Remark, that the *Doctor* in this *Experiment* and *Obſervation* gives *two different Accounts* of the *Effects* it produced, the laſt of which is moſt probable; and I Queſtion if the Hiſſing, Liquefaction, and bouncing herein mentioned, was any more then the common Noiſe a piece of *Slatty Coal* makes in the Fire, when it *burſts* or *flyes*, and which is occaſioned by the Expanſion of the Air within it, on the acceſs of heat ; and not by any *ſudden flexure* or *Curvity* of its Parts.

And the *Black Colour* of the *Saline Reſiduum*, after it had been tortured on the *hot Iron* was owing to the *Earth* remaining with the *Salts*, and not to the Nature of the Salts themſelves; for the *pure Salts* of theſe Waters ſubjected to the ſame Experiment immeditely diſolve, riſe into bliſters, and turn to a light ſpungy *white Calx*, not a little reſembling the Powder of well burnt Lime.

The *Doctor*'s Fourth EXPERIMENT.

" I put ſmall Portions of the ſaline Reſi-
" duum into four diſtinct *China* Cups: To
" one I put ſome Drops of Spirit of *Vitriol*;
" to a ſecond I put ſome Drops of Oyl of
" *Vitriol*; to a third I put Oyl of *Tartar*
" *per Delequium*, to a fourth, Spirit of *Sal*
" *Armoniac*, The firſt efferveſced moderate-
" ly: The ſecond efferveſced violently;
" emitting, at the ſame Time, a copious and
" very nauſeous Smoak: The third produced
" no conflict, but only brought the ſaline
" Matter into a Paſte: The fourth only liqui-
" fied it, without any other Appearance.
" Then I put ſome of the ſaline Reſiduum,
" that I had extracted from the Water in
" which I boyled the half Pound of Earth,
" into two different *China* Cups, and tried it
" with the ſpirit of *Vitriol*, and with the Oyl
" of *Vitriol*. The ſpirit of *Vitriol* cauſed no
" Efferveſcence. The Oyl of *Vitriol* did in-

deed

" deed produce a feeble Effervescence, but " did not emit any Smoak.

The Drs. OBSERVATIONS *on his Fourth* EXPERIMENT.

„ This complex Experiment proves, that " the Salt of this Water (as well the native " Salt which had chrystalized and subsided in " the second Pit, as the Salt procured by " Evaporation) is of a fixed Mineral Kind, " and of an alkeline Nature. Its violent Con- " flict, and Effervescence, with Oyl of *Vitri-* " *ol*, and the copious nauseous Smoak that " it emitted, are Proofs of the latter, *i. e.* " that it is of an alkaline Nature. Its amica- " ble Commerce, and its incorporating with " the Oyl of *Tartar*, may be admitted as a- " nother Proof of the same. And its keeping " perfectly dry for a whole Night, in a cold " Cellar, proves that is of a fixed, and not " of a lixivial, or a liquifying, Nature.

REMARK on the *Doctors* Fourth Experiment and Observation.

Here he puts the Plough before the Oxen; he should first have told us, that he had *evaporated the Watar to dryness*, before he mentions the *Effects of its Residuum*.

Tho' this Complex'd Experiment shews nothing of the Nature of these Waters, in

re-

regard that the Superficial Earth taken from the Bottom of the Spring communicates nothing to them; Yet it ſhews that the *Dr.* is not an *over Adept* in making *Chymical Experiments.*

For if the Salt he mentions was a pure unmix'd *Alkaline Salt*, it would certainly *liquify* in a cold Cellar, as well as *ferment* with *Oyl of Vitriol.*

But the Truth muſt be, that the greateſt, if not all the *Alkaline Part*, of this ſame Matter, which *he calls Salt*, was an *Abſorbent Earth*, which has both the properties he mentions *i. e.* * *ferments* with *Oyl* of *Vitriol*, and will not *liquify* in a *moiſt Air.*

The *Doctor*'s Fifth EXPERIMENT.

" I put one Drop of a ſtrong Tincture of " *Galls* to a Wine-Glaſs full of the Water, " (which was become perfectly clear by ſett- " ling) and it inſtantly tinged it of a weak " purple, or Amethyſt, Colour. About an " Hour after, I put three Drops more of the " Tincture of *Galls* to it, which preſently de- " ſtroyed that brilliant purple Colour that " had been given it by the firſt Drop, and " changed it to an obſcure browniſh Colour.

* See Dr. *Shaw*'s Experiments, to be uſed in Examining Mineral Waters. Page, 68.

Then

" Then I added ſome Drops of Oyl of *Tartar*
" to it, which rendered it more turbid, and
" of a deeper brown. Then I put the Mix-
" ture into a Phial, ſhook it, and examined
" it at the Sun, when I preceived abundance
" of dark brown Flocculi ſwimming in the
" Liquor. I ſet it to reſt; and, after half an
" Hour's ſtanding, it had depoſited a dark-
" brown unctuous Sediment, of half an Inch
" deep. To another Glaſs of the tinged pur-
" ple coloured Water, I put five Drops of
" Spirit of *Sal Armoniac*, which only weak-
" ened the purple Colour, but left the Li-
" quor clear as before. To a third Glaſs of
" the ſame tinged Water I put five Drops of
" the Spirits of *Hartſhorn per ſe*, which ſoon
" robbed it of its bright purple Colour, and
" turned it a little browniſh. This Mixture
" remained clear for ſome Time; but, on
" viewing it at the Sun, about an Hour after
" I obſerved a ſmall Quantity of browniſh
" Flocculi ſwimming in it; which after ſtand-
" ing at reſt ſome Hours, ſubſided to the
" Bottom: But the Quantity of ſediment in
" this, was not a tenth Part ſo much as that
" produced by the Oyl of *Tartar*. To a
" forth Glaſs of the tinged purple coloured
" Water I put five Drops of *Sal Volat. oleo-*
" *ſum*. This ſoon diſcharged the purple
" Colour; but it left the Liquor clear, and
" without any Sediment.

The Drs. OBSERVATIONS *on his Fifth* EXPERIMENT.

" This Experiment proves, undeniably, " that the Water is impregnated either with " *Iron*, *Vitriol*, or *Allum*. But I believe, and " am pretty ſure, 'tis with *Vitriol*; becauſe " we have no Reaſon to infer, from any of " the Experiments, that either of the others " exiſts in it. The Quantity of *Vitriol*, how- " ever, is not very conſiderable, becauſe the " purple Colour, which it receives from one " or two Drops of the Tincture of *Galls*, is " deſtroyed by the Addition of three or four " Drops more of the ſame. And hence we " learn, that the vitriolic Principle exiſting " in a Glaſs of this Water, is equivalent to " one or two Drops of the Tincture of *Galls*, " but that five or ſix Drops of the ſame " Tincture (being paramount or ſuperior " to it) overpowers and diſcountenances it. " And the Truth of this Conjecture will ap- " pear in another Inſtance yet: For, in the " firſt Eſſay I made, I put ſix Drops of the " Tincture of *Galls* into a Glaſs at once: I " then filled it up with the Water; and, to " my Surprize, found it did not tinge of a " purple Colour, but only changed of an " obſcure brown Colour, I put this Water " out of the Glaſs, (only leaving, accidental- " ly, a little at the Bottom) then filled it " up with freſh Water and it tinged purple

im-

" immediately. The Water's thus chang-
" ing, from a clear State to an obſcure
" brown Colour, (inſtead of a fine Purple,
" which was exſpected) by a Surcharge of
" the Tincture of *Galls*, plainly intimates,
" that the volatile Spirit of the Water (which
" moſt probably exiſts in its vitriolic Princi-
" ple) was thereby overpowered and de-
" preſſed. And it further appears, that, up-
" on the Inſtillation of ſome Drops of Oyl
" of *Tartar*, all the ſaline mineral Particles
" aggregated and coaleſced; and ſo, conſe-
" quently, ſubſided to the Bottom.

REMARK on the *Doctors* Fifth Experiment and Obſervation.

When * *Galls* either in Powder or Tincture give any Mineral Water a *purple* or *Blackiſh* Colour, there muſt be ſome Principle of *Iron* in that Water; but what the *Doctor* could propoſe by adding Oil of Tartar, *&c.* to the *tinged Water*, is not eaſily to be conceived, by Perſons, who love plainneſs and ſimplicity in their Experiments. Is not this, Firſt to *alter the Nature of the Water*, and then to make Experiments on that *Compound?* or in other Words to make

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* See, *Boyles* Philoſophical Works. Vol. 3. Page, 504.

Experiments *on ſomething different* from the *pure Natural Waters* themſelves?

Tinge *Pump Water Purple* with *Syrup of Cloves*, and drop thereto a few drops of *Spirit of Hartſhorne*, *Oil of Tartar*, &c. and as great Alterations will ariſe in the Mixture, as did in the *tinged Stratford Mineral Waters:* but you cannot call this an Examination of *Pump Water.*

As to the *Doctors* Obſervation that five or ſix drops of Tincture of *Galls* put the *Vitriolic Principle* exiſting in a Glaſs of this Water *out of Countenance*, it favours ſo much of the Roſicrucean Stile; that 'tis quite above my Comprehenſion.

The *Doctor*'s Sixth EXPERIMENT.

" I put four Pints, or 64 Ounces, of the " Water (which had been firſt filtered " through Paper) into a well glazed, flat, " earthen Pan, and then ſet it in a convenient " open Place, to be exhaled by the ſolar Heat. " When one quarter Part was exhaled, I took " out a Spoonful, and put it into a Phial. " When a ſecond Pint of the Water was ex- " haled, I took out another Spoonful, and " ſet that apart; and I did the like after the " third Pint was conſumed. When the whole " Reſidue was brought to half a Pint, I then " took out another Spoonful; and I numbe- " red the Phials, 1, 2, 3, 4. The firſt of theſe

" taſted

" taſted conſiderably ſtronger of the ſaline
" Mineral Contents, than the Water does in
" its native State; as did the other Portions,
" according to the Times they were taken
" out: But that Portion of it which was laſt
" taken out, (when the whole was reduced
" to half a Pint) was very ſtrong of the ſaline
" Mineral Contents. And this is what I ſhall
" ſtile (perhaps not improperly) its Lixivium.
" At this Time, however, the Liquor did not
" appear to ſhoot into Salts, or to Cryſtalize.
" I let the Remainder ſtand in the ſame Situ-
" ation, expoſed to the ſolar Heat, 'till it was
" exhaled to Dryneſs. Then I carefully
" ſwept up the Reſidue, which weighed two
" Drachms and ſix Grains. This Reſidue
" appears to be a fixed Mineral *Salt*, retaining
" ſomething of a vitriolic Nature. But this
" Salt, however, (though I have ſtiled the
" liquid Reſidue of the Water, after it has
" been reduced by Evaporation to one eighth
" Part of its Quantity, its Lixivium) is by no
" means of the lixivial Kind: For I put one
" Drachm of it into a *China* Cup, which I
" ſet in a cool Cellar for a whole Night, and
" the next Morning I found it as dry as be-
" fore. Whence it appears that this Salt does
" not liquify, nor contract any Degrees of
" Moiſture, which all lixivial Salts do. More-
" over, though the ſaline Matter remaining
" after the total Exhalation of the Water does
" retain ſomewhat of a vitriolic Nature, or

" Principle, yet, aſſuredly, the greater Part
" of the vitriolic Principle (as it exiſts in the
" native Mineral Water) is of a ſubtile fugi-
" tive Nature. (And yet, to conſider it in
" *Prima Facie* only, one would ſcarce ima-
" gine it, becauſe it does not manifeſt that
" active ſpirituous Nature which the *German*
" Spaw, the *Pyrmont*, and ſome other of the
" cold Chalybeates, do.) For this Water be-
" ing expoſed to evaporate, either by the ſo-
" lar Heat, or by fire, looſes its tinging Pro-
" perty which it had poſſeſſed before.

The Drs. OBSERVATIONS *on his Sixth* EXPERIMENT.

" This Experiment ſhews us the Quantity
" (and I believe I may ſay the Quality too)
" of the fixed mineral, or ſaline, Contents.
" The whole of the dry Reſiduum ſeems to
" be a pure, genuine, fixed mineral Salt,
" without any the leaſt Mixture of *Iron Oker*,
" terreſtrious or cretaceous Matter in it.
" The Quantity which I got of it, in the laſt
" Proceſs of this Sort, (being the third) was
" juſt two Drachms and fortytwo Grains,
" from five Pounds and four Drachms of the
" Water, or eighty Ounces and an half. This
" ſaline Matter nearly reſembles, in its Co-
" lour, rectified Salt of *Amber*: When appli-
" ed to the Tongue, it imparts a pleaſing
" Acrity to it, and an agreeable Bitterneſs:

But

" But it is not ſo very poignant and acrimo-
" nious (approaching to the cauſtic Nature)
" as ſome other Salts which I have gained by
" Experiments on Mineral Waters. The
" *Salt* of this *Water* (when it has been exhal-
" ed to one half, or one third, or even to one
" Quarter Part of its Quantity) does not ſhoot
" (as 'tis ſaid the Waters of *Acton*, *Epſom*,
" and *Cheltenham* do) into any determinate
" Figures, whether, cubical, priſmatical, hex-
" agonal, or Spear-like; but this Salt (after
" the total Exhalation of the Water) remains
" at the Bottom of the Earthen Veſſel, in
" the Form, or Appearance, of a Graſs-
" browniſh Powder, reſembling in that Par-
" ticular alſo, the rectified Salt, of *Amber*.

REMARK on the *Doctors* Sixth Experiment and Obſervation.

This Experiment of extracting the *Salts* from the *Waters*, when conducted with a moderate Skill in Chymiſtry, is abſolutely neceſſary towards diſcovering the Nature and Uſe of the Waters; but here alas! with a great ſhew of Pomp we do juſt nothing.

Four Pints of Water are expoſed for many Weeks in the *open Air* to be exhaled to dryneſs by the *Solar* heat. Had the *Doctor* conſidered, that innumerable particles of Heterogeneous Matter, which continually float

in

in the Air, and which muſt continually fall into the Water, and in ſo long a time *increaſe its contents*; he would have choſe to have *diſtill'd* or *exhaled it* over a gentle Fire, in a clean Veſſel, and in a ſhort time, as other People do: and then he had been ſure, that *nothing foreign* had mingled itſelf with it.

Again the *Doctor* ſays, *the Salts of this Water do not Shoot into Cryſtals of any determinate Figure*; no, nor never will in his way of Managing them: but had he been pleaſed to pour ſome diſtill'd Rain Water boiling hot upon the ſaline Reſiduum, which remain'd after evaporation, then filtred the whole through Cap-Paper, and had afterwards evaporated the Liquor to a Pelicle, and kept it in a cool Place a proper time to Shoot, he would have ſeen *as beautiful Cryſtals*, as any that CHELTENHAM ever produced, and nearly of the *ſame Figure*.

But *Chymiſtry* ſeems not to be the *Drs. Talent*.

The *Doctor*'s Seventh EXPERIMENT.

" I filled four Glaſſes with the Water, and
" numbered them, 1, 2, 3, 4. To the firſt
" I put one Drop of Tincture of *Logwood*,
" which inſtantly turned it of a deep Sky
" blue. I then tried a Drop of the ſame

Tincture

" Tincture with a Glaſs of Rain Water, and
" another with a Glaſs of Pump Water, to
" ſee the Difference: It changed the firſt
" to a high Cherry Colour, and the laſt to
" a pale Cherry Colour. To the Glaſs,
" No. 2, I put one Drop of a ſtrong Infu-
" ſion of dried Oak Leaves: To the Glaſs,
" No. 3, I put a Drop of a ſtrong Infuſion
" of Green Tea: And to No. 4, a Drop of
" Tincture of *Sumach*. The Infuſion of
" Oak Leaves gave it a very faint purple
" Caſt: The Infuſion of Green Tea gave
" ſuch a Change of Colour, inclining to a
" purple, as was barely perceptible: The
" Tincture of *Sumach* turned it only a
" little greeniſh. I then added to the firſt
" Glaſs, which had been tinged by one
" Drop of Tincture of *Logwood*, four Drops
" more of the ſame, at a Minute's Diſtance
" from each other; and I found that theſe
" additinal Drops of Tincture of *Logwood*,
" changed it, gradually, from the deep Sky
" blue, to a deep purple, or Amethyſt. Then
" I put ſome Drops of Oil of *Tartar per De-*
" *liq.* to it. which reduced it to a deep blue
" again. I tinged another Glaſs of the Wa-
" ter with five Drops of the Tincture of
" *Logwood*, which turned it (as it did the
" other Glaſs) of a deep purple Colour.
" Then I added five Drops of Spirit of *Hart-*
" *horn per ſe* to it. which produced much

the

" the ſame Change as the Oyl of *Tartar* had
" done to the other; but this produced nei-
" ther Sediment nor Cloudineſs in the Li-
" quor. I let them both reſt for about two
" Hours; and then examining them afreſh,
" I found the purple Colour had in ſome
" Meaſure recovered itſelf.

The Drs. OBSERVATIONS *on his Seventh* EXPERIMENT.

" This Experiment proved rather a Mat-
" ter of *Entertainment* and *Amuſement*, than
" of *Inſtruction*. Indeed it ſeemed as a ſu-
" bordinate or collateral Proof (of what was
" before ſufficiently manifeſted) that the
" Water has a vitriolic Impregnation. The
" Colour impreſſed on a Glaſs of the Water,
" by one Drop of the Tincture of *Logwood*,
" was realy extraordinary: And the Differ-
" ence between that, and a Glaſs of Rain
" Water, tinged with the ſame Quantity of
" Tincture of *Logwood*, is no leſs remark-
" able.

REMARK on the *Doctors* ſeventh Experiment and Obſervation.

The Difference of the Colour between the Mineral and common Water afforded by a Drop of *Tincture of Logwood* in this Experiment is no proof of a *Vitriolic Impreg-*

nation

nation in theſe Water, but of an *Alkaline Principle*; for the Pump Water, which was ſo widely different in Colour from the Stratford Mineral Water, by the addition of two drops of the *Volatile Alkaline Spirit of Sal Armoniac* was immediately changed to the *ſame Complection*, the natural Mineral Waters acquired without any Addition; and every one knows there *is no* Principle of *Iron* or *Vitriol* in this *Spirit*, how then can the *Doctors* concluſion be right? That this is a *Collateral Proof* of a *Vitrolic impregnation.*

If he means here that the Infuſion of *Oak Leaves* and of *Green Tea* giving the Waters a Purple Colour was a *Collateral Proof*, pray what was his *Principal Proof?*

Do not *Galls* and Dry'd *Oak Leaves* give the ſame colour to *Chalybeate Waters?* how inſignificant then is this Experiment?

The *Doctor*'s Eighth EXPERIMENT.

" I mixed 60 Drops of the *Tinctura Mar-*
" *tis Mynſichti* with two Ounces of the Wa-
" ter, which gave it a Straw Colour, and it
" remained clear for ſome Time. I exami-
" ned it again an Hour after, when I found
" it was become turbid, but yet not retain-
" ing its Straw Colour. I added ten Drops
" of Oyl of *Tartar* to it, which made the groſs
" Particles aggregate and coaleſce: and ob-
" ſerving the Mixture at the Sun, I diſcover-

" ed abundance of Flocculi ſwimming in it.
" I then ſet it to reſt; and, in an Hour's Time,
" all thoſe Flocculi gathered at the Top of
" the Glaſs, and left the Liquor underneath
" clear. I then gave the Mixture another
" Shake; after which all the Flocculi preci-
" pitated to the Bottom, and left the liquor
" above perfectly clear. *

REMARK on the *Doctors* Eighth Experiment and Obſervation.

I try'd this Proceſs on common *Pump Water*, and obtained the ſame Phænomena deſcribed by the *Dr.* on the *Stratford Mineral Waters*, without any perceptable difference, except its being ſomewhat ſlower in producing its Effects than the Mineral Water was; and this will not appear ſtrange to any one who has the leaſt knowledge of Chymiſtry, but is very clearly Accounted for in the following Manner.

The *Tincture of Mars*, as it is now kept in the SHOPS (and ſuch I ſuppoſe the *Dr.* had) is a *Solution of Steel* in a very *ſtrong Acid*, of a deep *Orange Colour*, which being deluted in a large Quantity of Water, muſt naturally grow weaker in regard to its *Acid*, and lighter in reſpect to its *Colour*, whereupon it in an hour became *turbid*, and would

* See the *Drs* Concluſion from this Experiment, and the three following after the Eleventh Exper. P. 30

in

in a longer time have *precipitated*, but by the Addition of *Oyl of Tartar* that precipitation was haſten'd and an *effervescence* produced, rendering thereby the *Acid* of the *Tincture of Steel* neutral, by which it was no longer able to hold the *Mineral Particles*, in a State of *Solution*, whence they again aggregated (but let the *Dr.* ſay what he will they *never effervesced*, whatever the *different Salts* might do) and produced the innumerable *Flocculi* floating in the Water.

Therefore from this Experiment we can learn nothing of the Nature of the Waters, but only the Nature of theſe Parts of the *Materia Medica* made uſe of to diſcover the Contents of the *Stratford Mineral Waters*.

The *Doctor*'s Ninth EXPERIMENT.

" Having diſſolved one Drachm of Salt of " *Wormwood* in an Ounce of Pump Water I " mixed the Solution with four Ounces of the " Mineral Water, which at firſt produced no " remarkable Appearance; but after it had " ſtood at Reſt two Hours, it turned turbid, " and in 24 Hours depoſited a browniſh " Sediment.

REMARK on the *Doctors* Ninth Experiment and Obſervation.

This Experiment ſhews, that there is

ſome * Portion of *Earth* diſolved in this *Water*, or elſe that the lixivious Solution uſed in this Experiment was not made with a *pure unmixed Alkaline Salt*, from one of which cauſes the Sediment undoubtedly followed; and why the *Dr.* ſhould from hence conclude, ‖ that a *Vitriolic Acid* exiſts in theſe Waters, I confeſs myſelf Ignorant; for that could only in ſome degree have *neutralized* the *Alkali*, but would not have a Body in the leaſt degree *leſs ſoluble*.

For a Proof of this Remark, I try'd this Experiment with a *filter'd Solution* of the ſame Salt, and after three Days time it had depoſited but a very *ſmall Quantity* of a Whiteiſh Matter, whence tis plain the *Sedement* mentioned by the *Dr.* was not owing to the *impurity of the Waters*, but to the *Salts the Dr. uſed* in this Experiment, and that theſe Waters are not loaded with much *Earthly Matter*, † which is no ſmall Excellency in them.

The *Doctor*'s Tenth EXPERIMENT.

" I diſſolved half a Drachm of Sugar of

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* See Dr. *Shaw* on the Scarborough Spaw. Pag 90.

‖ See the *Drs.* Obſerv. after the 11th Exper- P. 30.

† See, *Shaw*'s Tranſlation of *Hoffman* on Mineral Waters. Page, 40.

" *Lead*

" *Lead* in an Ounce of Rain Water, and than
" mixed it with two Ounces of the Mineral
" Water; and though the Sugar of *Lead* was
" *per ſe*, almoſt as white as Milk, yet, on
" mixing the Mineral Water with it, the
" Sugar of *Lead* ſoon precipitated, and left
" the Liquor clear.

REMARK on the *Doctors* Tenth Experiment.

This Experiment is generally uſed to Diſcover a proportion of *Sea Salt* in any Water, and realy does diſcover a Mixture of † *Sea Salt* in the *Stratford Mineral Waters*, tho' the *Dr.* ſeems not to have known ſo much, or at leaſt to have conceal'd it, if he did know it. I ſhall explain the Rationale of this in a following Remark.

The *Doctor*'s Eleventh EXPERIMENT.

" I mixed a Drachm of corroſive Subli-
" mate, diſſolved in one Ounce of Rain Wa-
" ter, with ſix Ounces of the Mineral Water,
" but no remarkable Appearance enſued; it
" only turned the Water of a muddy pearl

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† See, *James*'s Phyſical Dictionary, under the Article *Acidulæ*.

" Colour

" Colour; and, after ſtanding 24 Hours at
" Reſt, I found it had depoſited little or no
" Sediment.

The Drs. OBSERVATIONS *on his Eighth, Ninth, Tenth and Eleventh,* Experiments.

" Theſe ſeveral Experiments afforded no-
" thing remarkable; nor did they give Birth
" to any new Conjectures concerning the
" Water, or its mineral Contents. Indeed,
" the Effects of the *Tinctura Martis Mynſicti*,
" mixed with the Water, proves that the al-
" kaline Quality, or Contents, of it, predo-
" minates over the acid vitriolic Quality; as,
" on the other Hand, the Effects produced
" by Salt of *Wormwood*, mixed with the Wa-
" ter, plainly ſuppoſes the Exiſtence of ſome
" acid vitriolic Principle.

REMARK on the *Doctors* Eleventh Experiment and Obſervation.

From hence we ſee the *Salt* in this Water is not ſo *Alkaline*, as the *Dr.* imagines, otherwiſe 'twould precipitate the || *Subli-*

|| See, *Shaw's* General ANALYSIS of Mineral Waters. Page, 84.

mate

mate in a *Rediſh* or *Yellowiſh Powder*; but I muſt here Obſerve, tho' the *Dr.* ſays it afforded little or no *Sediment* after it had ſtood 24 Hours, yet upon tryal I found it let fall *no very ſmall Quantity* of Whitiſh Sediment in three Hours time.

The *Doctor*'s Twelfth EXPERIMENT.

" I mixed two Drachms of Syrup of *Violets* " with two Ounces of the Water, which gave " it a light green Colour. I mixed two " Drachms more of the Syrup with an equal " Quantity of the Lixivium of the Water, " which produced a muddy green Mixture. " To the firſt Mixture (of Syrup of *Violets* " with the Water) I added five Drops of Oyl " of *Vitriol*, which inſtantly changed it into " a light crimſon Colour.

The Drs. OBSERVATIONS *on his Twelfth* EXPERIMENT.

" This Experiment proves, undeniably, " that the ſaline fixed Contents of the Water " are of an alkaline Nature; and that, as I " take it, is all it ſpecifies. The firſt Time I " tried the Water with Syrup of *Violets*, the " Syrup happened to be of a bad Sort, " (though the beſt I could then procure) be- " ing rather of a crimſon than a blue Colour.

" Never-

" Nevertheleſs, the Water took a deeper
" Green from that Syrup, than it did from
" what I procured afterwards from a diſtant
" Place, and which was exceeding fine, blue,
" and well flavoured.

REMARK on the *Doctors* Twelfth Experiment and Obſervation.

This is generally lookt upon as a ſure Experiment to diſcover, if any Liquid naturally inclines to *Alkali* or *Acid.* But why does the *Dr.* add *Oyl of Vitriol* to the Water? he makes it *Acid* by that addition, tho' he did not find it ſo. I ſhall diſcover a ſecret to the *Doctor* which I believe he never heard of before, *viz.* *Syrup* of *Violets* will turn green with a Solution of *common Alum*, which the *Dr.* I dare ſay, took always for an *Acid.*

How then can this be an undeniable or demonſtrative proof of an *Alkaline Mixture?*

The *Doctors* Thirteenth EXPERIMENT.

" I mixed four Ounces of the Water with
" an equal Quantity of freſh Cow's Milk,
" which afforded nothing remarkable; it on-
" ly turned gradually ſour, in Proportion of
" Time, as another Glaſs of the ſame Milk
" did, which was taken at the ſame Time,
" and ſet by to compare with this Mixture:

The

" The only apparent Difference was this, *i.* " *e.* the ſubſtantial Part, or Cream, of the " Mixture: gathered at the Top of the Glaſs, " whilſt the ſerous Part remained below, al- " moſt as limped as Water. The pure Milk, " on the contrary, was throughout like a " uniform Jelly, only had a thin Skin of " Cream on its Surface.

The *Doctor*'s Fourteenth EXPERIMENTS.

" To four Ounces of Water, tinged with " the Tincture of *Galls*, I put one Drachm " of quick *lime*, which did not ſoon deſtroy " the purple Tincture: But I obſerved, that, " as the *lime* ſubſided to the Bottom of the " Glaſs, the Water grew gradually paler; " and, in about two Hour's Time, the purple " Tincture was quite deſtroyed.

The Drs. OBSERVATIONS *on his Thirteenth* and *Fourteenth* EXPERIMENT.

" Theſe Experiments *afforded nothing Re-* " *markable*. The thirteenth Experiment " (which mentions the mixing the Water " with an equal Quantity of freſh Cow's Milk) " ſuppoſes only this, *v. g.* that the alkaline " Salts of the Water only made a more ſpee- " dy and perfect Separation of the ſubſtantial " part from the Lympha, or Serum, of the " Milk.

REMARKS on the *Doctor*'s Thirteenth and Fourteenth Experiments, and Obſervations.

Theſe Experiments the *Doctor* very ingeniouſly Obſerves, *afforded nothing Remarkable*; True! but why are our Hopes raiſed by the pompous Number of *near Thirty Experiments* in the Title PAGE? and when we come to Particulars, are ſo ſadly diſappointed.

(1.) *One Experiment* proves Matter of *Amuſement* rather than *Inſtruction*, (2.) *Six More*, afford *nothing Remarkable*. (3.) The *Thirteen* laſt ſuppoſe *nothing new of the Water*, and there are *two* out of the Thirty *quite Loſt*.

Quid dignum tanto feret hic Promiſſor hiatu?

The *Doctor*'s Fifteenth EXPERIMENT.

" In order to diſcover, as nearly as poſſible, " whether this Water has any volatile fugi- " tive Spirit in it, I filled half a Dozen Glaſſes " with it, immediately after one another, and " I numbered them, 1, 2, 3, 4, 5, 6. To the

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1. See Dr. *Perry*'s Obſervation on his Seventh Experiment.
2. His Obſervation on the 8, 9. 10. 11. 13. and 14. Experiment.
3. Ibid. on the 15th.

firſt

" firſt Glaſs I put, the ſame Inſtant, one Drop
" of the Tincture of *Galls*. Two Hour's af-
" ter I put a Drop of the Tincture to the ſe-
" cond Glaſs: And ſo on, at two Hour's
" Diſtance from each other, 'till each Glaſs
" was ſupplied with a Drop. The firſt Glaſs
" tinged as uſual: The ſecond, third, and
" fourth Glaſſes, received each ſome Tincture
" from it, but with a gradual Diminution of
" Force. As to the fifth and ſixth Glaſſes,
" they received no Tincture at all from it.
" And hence we muſt infer and conclude,
" that this Water does actually contain ſome-
" what of a ſubtil fugitive Spirit; which,
" otherwiſe, I ſhould not have been induced
" to think.

The Drs. OBSERVATIONS *on his Fifteenth* EXPERIMENT.

" From this Experiment we have Reaſon
" to conjecture, that the Water actually has
" ſome degree of a ſubtile, fugitive Spirit:
" For, otherwiſe, the Water would not looſe
" its tinging Power by being expoſed for
" ſome Hours to the open Air. But this ap-
" pears no leſs manifeſt in another Inſtant:
" For all that Water which I filtered, (in or-
" der to evaporate it) loſt its tinging Facul-
" ty or Power, only by lying ſome Time in
" the Paper, expoſed to the Air:

" All the ſubſequent Experiments, (whe-
" ther we conſider them together, or apart)
" ſuppoſe nothing new of the Water, or its
" Mineral Contents, more than has been al-
" ready ſpecified, or rather demonſtrated,
" by our Obſervations on the preceding
" Experiments.

REMARK on the *Doctor's* Fifteenth Experiment and Obſervation.

Had the *Doctor* thro' all his Experiments uſed that Neatneſs and Simplicity, which appears in this, he had been very ſafe from any Contradiction: for nothing can be more Demonſtrative than this, to prove the *Vitriolic Principle* in theſe Waters, to be of a *Volatile Nature*, For which Reaſon they muſt be much † more Effectully Drank *at the Spring*, than at any Diſtance from it.

The *Doctor's* Sixteenth EXPERIMENT.

" I mixed 20 Drops of a Solution of Silver
" (made in *Aqua Fortis*) with a Wine Glaſs
" of the Water, which preſently rendered it
" of an obſcure pearl Colour, and a little
" cloudy. I then mixed ten Drops of the
" ſame Solution with half an Ounce of the

† See, *Shaw's* Tranſlation of *Hoffman* on Mineral Waters. Page, 26, 27.

Lix-

" Lixivium, which inſtantly curdled it; and
" a white greaſy Sediment ſoon fell from it.
" A like Quantity of the Solution, mixed
" with a Glaſs of Rain Water, (on Purpoſe
" to ſee the Difference) produced no Change
" on it; but it remained as clear and limpid
" as before. The ſame Number of Drops,
" mixed with a Glaſs of Pump Water, made
" the Mixture appear as if tinctured with a
" little Milk. I made yet another Eſſay, by
" mixing ten Drops of the ſame Solution of
" Silver with 20 Drops of the Lixivium,
" which immediately curdled as before.
" I then added five Drops of Oyl of *Tartar*,
" which made it efferveſce for a Moment,
" and then it ſubſided.

REMARK on the *Doctor*'s Sixteenth Experiment.

From this and all the ſubſequent Experiments the *Dr.* ſays *no freſh Conjectures concerning the Nature of the Waters can ariſe, than what he has already Obſerv'd*, but had he read BOYLE'S *Uſefullneſs of Experimental, Philoſophy*, he would have found theſe Words.

" I have often found an unſuſpected *Sea*
" *Salt* in Waters by pouring therein a *Solu-*
" *tion* of *fine Silver* made in *Aq. Fortis*, for
" as common *Sea Salt* or its *Spirit* will

pre-

" precipitate the Mineral in form of a *White*
" *Calx* in ſuch a Solution, I imagined if the
" Water in its Paſſage through the Earth,
" gain'd *ever ſo few Saline Corpuſcles* they
" would Act tho' faintly on the diſſolved
" Particles of the *Silver*, and accordingly on
" their Mixture a kind of *Whiteneſs* enſued.

Therefore from hence, as well as the Tenth Experiment made with *Sugar of Lead*, we may diſcover a Portion of *Sea Salt* in *this Water*; for tho' *Aq. Fortis* is a diſſolvent for *Silver* and *Lead*, yet by the Addition of *Sea Salt* it becomes an *Aq. Regia*, which Acts only on *Gold*, and not on *Silver* or *Lead*; and Conſequently the *Silver* in the *Aq. Fortis* falls to the Bottom when the *Sea Salt*, which is in this Water is *Mingled with it*.

The *Doctor*'s Seventeenth EXPERIMENT.

" I mixed four Drops of Oyl of *Vitriol*,
" with two Drachms of the Lixivium, which
" produced no Effervescence, nor yet any Se-
" diment, or Muddineſs; nor did the Oyl of
" *Vitriol* looſe much of its Acidity by this
" Mixture, little more than it would have
" done if mixed with as much Water. I then
" added ſix Drops of Oyl of *Tartar* to it,
" which produced an inteſtine Motion: The
" Mixture, however, continued pretty clear,

only

" only that a few Filaments ſeemed to float
' in it, for a Minute or two. By this Means
" the predominant Acidity, given by the Oyl
" of *Vitriol*, was deſtroyed, and the Mix-
" ture taſted much like the ſimple Lixivium.

The *Doctor*'s Eighteenth EXPERIMENT.

" I mixed four Drops of Spirits of *Hartſ-*
" *horn per ſe* with two Drachms of the
" Lixivium, which produced little or no
" Alteration on it. I then added four Drops
" of Spirit of *Vitriol*, which produced an
" inteſtine vermicular Motion in the Mix-
" ture. When this was ended, the Liquor
" remained clear, and without Sediment.

REMARKS on the *Doctor*'s Seventeenth and Eighteenth Experiments.

Theſe Experiments the *Doctor* well Obſerves ſhew no more than what he has before taken Notice of *i. e.* that the *Acid* of *Vitriol* and the *Alkali of Tartar* or *Hartſhorne* are of an Oppoſite Nature to each other, and when mixed cauſe an *Effervеſcene* or *inteſtine Vermicular Motion*, which is too well known to admit of any Contradiction. But what is the Uſe of all this?

Utitur in re non dubia teſtibus non neceſſariio.
CICERO.

The

The *Doctor*'s Nineteenth EXPERIMENT.

" I mixed four Drops of Spirit of *Sal Ar-*
" *moniac* with two Drachms of the Lixivi-
" um, which produced no viſible Change. I
" then added four Drops of Spirit of *Vitriol*,
" which produced no inteſtine Motion, as in
" the preceeding Experiment; but the Mix-
" ture remained perfectly quiet and clear.

REMARK on the *Doctors* Nineteenth EXPERIMENT.

As the *Stratford Mineral Waters* had afforded no Sign of any *Acidity* in any of the Experiments, this Seem'd to me Morally impoſſible, well knowing the Spirit of *Sal Armoniac* to be as truly *Alkaline*, as Spirit of *Hartſhorne* or *Oyl of Tartar*; And when I came to try this Experiment with the Water, I found my own Reaſon to be a more faithfull Guide then the *Doctor*'s Account of his Experiment; for, as I imagined, *it Efferves'd* on the Addition of the *Vitriolic Acid* with great Violence; ſo that we may ſee how neceſſary it is to take no Mans *Ipſe dixit*, when he talks contrary to the dictates of Reaſon, let his Name be ever ſo great; but if the *Doctor* upon trying this Experiment, found what he Aſſerts to be true, he certainly ſtay'd till the *Volatile Alkaline Spirit* was fled off,

before

before he added the *Acid*, which I am in hopes he did.

The *Doctor*'s Twentieth EXPERIMENT.

" I tried ſome of the Water with a Piece of " hard ſoap, and found that it lathered pret- " ty well. Indeed, the Water of itſelf ſeems " to be ſomewhat of a ſaponaceous Nature ; " for I have ſeveral Times waſhed my Hands " with it, and it does much better than com- " mon Water.

REMARK on the *Doctor*'s Twentieth EXPERIMENT.

The amicable Commerce of the Soap with this Water not only ſhews the Salts therein to be *alkaline* or *neutral*, but that the Water is pretty pure from any *Earthy Matter*, and is not of that kind generally term'd *hard Water*, which is no ſmall argument in favour of it.

The *Doctor*'s Twentyfirſt EXPERIMENT.

" Having tinged a Glaſs of the Water with " two Drops of Tincture of *Galls* : I added " two Drops of Oyl of *Vitriol* to it, which " immediately reduced it to its native Colour, " without producing any Sediment, or " Cloud. I then added two Drops of Oyl of

" *Tartar* to it, which reſtored the purple " Colour. Afterwards I added five Drops of " Spirit of *Vitriol*, which diſcharged the " purple Colour again, and reduced it to its " priſtine Colour of pure Water. And thus, " as I preſume, we might ſucceſſively give " and diſcharge the purple Tincture, in *Infi-* " *nitum*, only by adding, alternately, Oyl " of *Tartar* and Oyl of *Vitriol*.

REMARK on the *Doctor*'s Twenty Firſt EXPERIMENT.

This diſcovers not the leaſt Quality of the Water or its contents, but ſhews us the Effects of *Alkali* and *Acid* in inſtantly *changing certain Colours*, and deſtroying each others peculiar Properties and Qualities, which may be ſeen much better in *Dr.* Shaw's *Tranſlation of* Boerhave's *Chymiſtry*.

The *Doctor*'s Twenty Second EXPERIMENT.

" I mixed ten Drops of Oyl of *Sulphur*, " *per Campanam*, with a Glaſs of the Water, " which produced no Change, either in the " Colour or ſmell of the Water. I then ad- " ded ten Drops of Oyl of *Tartar* to it, which " produced a ſmall inteſtine Motion, without " any Change of Colour; but the Mixture

had

" had acquired a fœtid Taſte and ſmell, like " rotten Eggs.

REMARK on the *Doctor*'s Twenty Second EXPERIMENT.

The *Oyl* of *Sulphur* is as much an *Acid* as the *Oyl* of *Vitriol*, and will equally Effervesce with *Oyl* of *Tartar* or any other *Alkali*. Upon trying this Experiment, 'tis true, a ſtrong Smell ariſes on the addition of the *Tartar*, which ſtrikes the Olfactory Nerves, not like rotten Eggs, but ſomewhat like burning Sulphur: but this Effect is not owing to any property of the Waters, but from * ſome Particles thrown off in the conflict between the *Acid* and *Alkali* added to the Waters. How little to the Purpoſe then is all this?

The *Doctor*'s Twenty third EXPERIMENT.

" I mixed ten Drops of Oyl of *Sulphur* " with one Drachm of the Lixivium, which " produced no Change of Colour, nor any " other Appearance. I then added ten Drops " of Oyl of *Tartar*, which inſtantly cauſed " a furious Effervescence; and when that " was over, the Inſide of the Glaſs was be-

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* See, Dr. *Shaw*'s Chemical Hiſtory of Particular Qualities. Page, 329.

" decked with innumerable Veſſicles, or " Air-Bladders.

REMARK on the *Doctor*'s Twenty Third Experiment.

The uſeleſsneſs of this Experiment has been already taken Notice of, not only in the eighth, but in ſeveral others, and is in Fact, as *Seneca* expreſſes it,

Operoſ'e nihil agere,

The *Doctor*'s Twenty Fourth Experiment.

" I put ſome of the dry ſaline reſiduum " into a *China* Cup, and then dropt ſome " Oyl of *Sulphur* upon it. This cauſed it to " effervelce, and emit a fœtid Smoak: But " theſe Effects were weaker than thoſe " produced by the Oyl of *Vitriol.*

The *Doctor*'s Twenty Fifth Experiment.

" To ſome of the calcined Earth, reduced " to a Powder, I put ten Drops of Oyl of " *Sulphur*, which cauſed it to ferment a little, " and produced ſomewhat of a fœtid Smell.

REMARKS on the *Doctor's* Twenty Fourth and Twenty Fifth Experiments.

The Effervescence herein cauſed was not from

from the meeting of the Sulphurous *Acid* with any *Alkaline Salt* in the Water, but from the *alkaline* quality of the *Earth* remaining in the *Reſiduum*; therefore theſe Experiments cannot be allow'd as proofs of the Stratford Waters containing a fixed *alkaline Salt*. And almoſt *all Earths* may by long calcination, be made ſtrongly *Alkaline*.

The *Doctor*'s Twenty ſixth Experiment.

"I mixed four Drops of a ſtrong Tincture of "*Rhubarb* with a Glaſs of the Mineral Wa- "ter; and at the ſame Time I mixed four "other Drops of the Tincture of *Rhubarb* "with a Glaſs of Rain Water, to ſee their "different Effects or Appearances. Each "Glaſs of Water received immediately, a "yellowiſh Caſt, or Colour, from it, which "continued, in both alike, for ſeveral Hours "without any apparent Difference, as to the "Change of Colour they had acquired: But "in 24 Hours Time, the Mineral Water had "aſſumed a ſtronger Colour; and it grew "gradually ſtronger, 'till, at the End of five "Days, it was of a high fleſh Colour, "with a purple Hue: The Rain Water ſtill "preſerving the ſame Colour, as at firſt.

REMARK on the *Doctor*'s Twenty Sixth Experiment.

Allowing this Experiment to be Fact, *which*

which did not ſucceed with me, but as that may be owing to the different Methods of making the *Tincture of Rhubarb* herein uſed, it may be admitted as a Proof that the *Alkaline* or *Neutral Salts*, contain'd in theſe Waters, are not of the *Lixivial kind*; for were they, they would immediately give the *Rhubarb* a *Rediſh Colour*, as other Salts of the ſame kind do.

The *Doctor*'s Twenty Seventh Experiment.

" Beſides the Water which I exhaled by " the ſolar Heat, I evaporated the like Quan- " tity over a gentle Fire, and I found the ſa- " line Reſiduum reſulting from each to be " pretty near the ſame as to Quantity, Co- " lour, Taſte, *&c.* I ſubjected ſome ſmall " Portions of each to the ſame Experiments, " with Spirit of *Vitriol*, Oyl of *Vitriol*, Oyl " of *Tartar*, &c. But I found the Effects " produced on that Salt which was procured " from Exhalation by the ſolar Heat, to be " more feeble than thoſe produced on the " other Salts: That is, the Salt produced " from Exhalation by the ſolar Heat, did not " Efferveſce ſo ſtrongly with the Oyl of *Vi-* " *triol* as the other did, nor did it emit any " Smoak.

REMARK on the *Doctor*'s Twenty Seventh Experiment.

The *Doctor* now Evaporates the Water in

in a proper manner to obtain its Reſiduum. but inſtead of Diſſolving and Criſtallizing the Salts therein, he expoſes it again to the force of *Alkali* and *Acid:*

Is not this *Crambe recocta?*

The *Doctor*'s Twenty Eighth Experiment.

" In order to find out, and aſcertain, the " comparative Weight of this Water, I " weighed exactly the ſame Quart Bottle, " filled with each, one after the other, and " I found that the Mineral Water prepon- " derated only 34 Grains, which is not " a 450th Part.

REMARK on the *Doctor*'s Twenty Eighth Experiment.

I muſt obſerve, that it would have been but juſt to have told us here; what it was the *Dr.* compared the weight of the *Mineral Waters* with, whether *Rain*, or *Spring*, or *Pump*, or *River Water*, that his *overſcrupulous* READERS, as he calls them, might have ſatisfied their Curioſity in repeating the ſame Experiment. But probably he has deferred that till the *Second Edition of his* BOOK.

It remains now to make ſome Remarks on the *Doctor*'s Concluſions from the Whole, which he begins in the following manner. *Page*, 32.

The Virtues of the Water conſidered and ſet forth.

" Seeing that the Mineral Contents, or " Impregnations, of this Water are (as has " been ſhewn above) a ſubtile *fugitive Vi-* " *triol*, and a fixed, *Mineral alkaline Salt*; " ſo theſe two Principles are what offer to " our preſent Conſideration: And firſt of " *Vitriol*."

Here he recites the Opinion of the Antients on the common *fixed Vitriol*, " as a " very *Efficacious Vermifuge*, as an *Anti-* " *dote* againſt the *Plague* and *Peſtilence*, a " *Reſiſter* of *Putrefaction*; a *Preſerver* from " *Corruption*: As an *healing drying*, *An-* " *ti-apoplectic*, *Anti-nepehritic Aſtringent*, " *Strengthening*, and *invigorating Medi-* " *cine*." Then for brevity's Sake haſtens to deliver his own Opinion of it which he does by a Quotation from his Book, " entitled, " An Enquiry into the Nature and Principles " of the *Spaw Water*, &c. and this Quota- " tion begins with theſe Words.

" *Vitriol* is commonly accounted a *Semi* " *Metal*, it being a *Salt*, which has pollut- " ed itſelf by engendring with ſome *Metal*

" or

" or other, but however unchaſte and po-
" lute it may be in its commerce with dif-
" ferent Species, it is never the leſs excel-
" lent, in its Nature and Uſes.

From hence therefore 'tis evident, the *Doctor* ſtill confines himſelf to the ſame *fixed Subſtance*, the noble Efficacy of which, he ſays, * " might juſtly be inferred and concluded on from the general Uſe of the two famed Medicines *Elixir* of *Vitriol*, and *Tincture* of *Steel*; which has relieved and reſcued more Perſons from Atrophies, and all Diſeaſes ariſeing from a depravity of the natural Digeſtions, and Concoctions of the Stomach, than any other Medicines."

But how far theſe two Medicines may be of ſervice or diſſervice in theſe Diſeaſes, I ſhall not take upon me to determine, it being not only quite foreign to the Matter in hand, but both of them Diametrically Oppoſite to the nature of the Waters; for they conſiſt of a *Solution* of *Iron* by a *fix'd Vitriolic Acid*. Whereas the Water, even in the *Doctors* opinion || conſiſt of a *Volatile Vitriol*, and a *Strong Alkali*, notwithſtanding which difference, the *Doctor* concludes their

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* See the *Doctor's* Book, Page, 34 and 35.

|| See the *Doctor's* Analyſis. Page, 32.

† Effects and Virtues to be *one and the ſame*: where is the Senſe of this?

That there is no *fixed Vitriol* in Mineral Waters is certain, and it is equally certain, that their effects on the human Body ought not to be compared with the Effects of Medicines prepared from a *fixed Vitriol.* And as I can ſay nothing more convincing on this particular, than the great and learned *Hoffman* has already ſaid, and as the *chance of the Advantage*, which his Name will afford, in enforcing my Argument, is very great, I will inſert his Opinion at length, from *Shaws Tranſlation of his Works on Mineral Waters. Page*, 99.

'Tis a prevailing Notion at preſent among 'moſt of the Writers upon Mineral Waters, 'that they contain a *Vitriol* like to the 'common Vitriol of *Iron*: which is the 'Opinion of the better or more Experimen-'tal kind of Writers. And in order to 'countenance this Opinion, they laborioufly 'endeavour to prove, that *Mineral Waters* 'exhibit the ſame Phænomena, as a ſolution 'of that *Vitriol* in Common Water.'

'The Experiments they produce on this 'Occaſion are theſe.

† Ibid. Page, 35.

'(1) That

'(1) That Mineral Waters and Common 'Water impregnated with Vitriol have near-'ly the *ſame Taſte.*

'(2) That both of them turn Purple on 'a ſmall addition of *Galls.*

'(3) That both of them turn to a kind 'of *Ink* with a large addition of *Galls.*

'(4) That neither of them will *curdle* 'Milk.

'(5) That both of them grow thick with '*Oyl* of *Tartar* and let fall a Sediment.

'(6) That the *Earth* they both afford, 'upon Evaporation, as alſo the okery Sedi-'ment they ſpontaneouſly let fall, makes a 'conſiderable Ebulition with *Spirit of Ni-'tre*; and ſends out a Smoke in the ſame 'manner, as the *Vitriol of Iron* would do 'in the like caſe.

'(7) And laſtly that the *Salt* properly 'extracted from the inſiped Earth, has a 'pale Colour, an irregular Figure, and pro-'duces the ſame Effects as *Vitriol of Iron.* 'And by theſe Arguments there are ſome, 'who think they Sufficiently prove the 'Exiſtence of an *Actual Vitriol* in *Mineral 'Waters.*'

'But this Opinion reſts upon weak Pre-'tentions; which need not all be Seperatly 'conſidered, becauſe they make nothing to

'the Proof of the Aſſertion: We ſhall there-
'fore only conſider the Capital thing, which
'being overturned the reſt will fall of
'Courſe. No one who uſes his Senſes, can
'poſſibly doubt, that there is ſomewhat of
'a *Vitriolic Nature* in *Mineral Waters*, for
'not only the *Taſte* but the *Sight* confirms
'it, by their turning *Inky* with *Galls*, &c.
'But the Queſtion is, whether this *Vitriolic*
'*Matter* be the ſame with the *groſs cor-*
'*poral Vitriol* in common Uſe: which has
'hitherto been proved by *no Arguments*
'*nor Experiments*. For the *Vitriolic Mat-*
'*ter* in Medicinal Waters is *Volatile*; but
'the Common Vitriol *fixt*: ſo that their
'*Nature* and *Operations* are intirely *differ-*
'*ent*; Thus tis evident by Numerous Try-
'als that the addition of *Galls* to the Wa-
'ters of *hot Mineral Springs* cauſes but a
'very ſmall change of Colour, unleſs the
'Water be freſh taken from the Spring
'head: and when it has ſtood any time ex-
'poſed to the open Air, it *no longer changes*
'*Colour at all*. 'Tis true that in the brisk
'Waters of *Cold Springs* this Tincture ap-
'pears blacker: but here alſo the Natural
'*irony taſte* immediately vaniſhes, upon
'their being expoſed to a gentle Heat, or
'the open Air; and they then no longer
'ſtrike a dusky Colour with Galls. So that
'the *ſtrongeſt Steel Waters*, even thoſe of

'*Pyrmont*,

'*Pyrmont*, when heated, or ſuffered to ſtand 'in the Air for twenty four Hours, afford no 'Signs of a *Vitriolic Nature*. Nor have 'thoſe who argue ſo earneſtly for a *Solid* '*Vitriol* in Steel Waters, been able by their 'utmoſt Endeavours from an hundred Pints 'of theſe Waters to extract and exhibit to 'the Eye, a *ſingle Grain of Vitriol*. For tho' 'HELMONT in his fourth Paradox de-'clares, that by the means of Diſtillation he 'obtained a *Vitriol* from the *Spaw Waters*; 'yet this plainly Appears to be one of his 'Pretences: as *no other perſon* by the ſame 'Operation, tho' ever ſo exactly perform'd, '*could* obtain an actual Vitriol from them. 'The Concluſion upon the whole is, that 'theſe kinds of Waters, realy contain ſome-'what of an *irony Nature*; which being 'joined with a *Sulphurous Spirit* reſembles 'common *Vitriol* only in the *Taſte* and *Co-'lour* it gives, without any farther ap-'proaching to the Nature thereof: And con-'ſequently *they Err*, who upon hearing the 'Name of Vitriol mentioned about theſe 'Waters judge of them, as abounding with 'the groſs or *Common Vitriol* of the Shops.'

No Quotation can be more ſtrong againſt the *Doctor*'s Concluſion than *This*, and from hence tis very evident that the learned *Hoffman* or *Dr. Perry*, muſt in this particular be in a very great Error.

We

We now come to conſider the other property the *Doctor* aſcribes to this Water, *i. e.* † *a fixed Mineral Alkaline Salt*: And I believe every one will think it but reaſonable, that the *Dr.* ſhould prove the *Actual Exiſtance of it*, before he allows the Properties thereof to the Water; which I will venture to affirm he has not yet done in any one Experiment, nay, he has not ſo much as ſeperated *any pure Salt, of any kind*, how then can he ſay he has ſhewn above, that the Waters contain an *Alkaline Salt?* indeed the *Dr.* has evaporated the Water to dryneſs, but has never waſh'd the *Salts* from the *Earth*; and the truth is that the Reſiduum of this Water conſiſts of an *Alkaline Earth*, as well as a *neutral Salt*, and all the Appearances of an Alkaline Property, in theſe Waters were owing to the *Earth*, and not to any Quality of the *Salts*; which ſhall be undeniably proved hereafter. Therefore how far *Alkaline Salts* Act on the Solids and Fluids of Animal Bodys, and are proper in *Scurvys, Rheumatiſms, Gout, Fluxes, Ulcers, Leproſy, Jaundice, Dropſys, Hypicondraic Caſes, Obſtructions of all kinds*, how far they are able to Correct the Exceſs or defect of the *Menſtrua* and *Hemorrhoids*, how proper in the *Eriſipilas* and *Inflamations*

† See the *Drs.* Book, Page, 32.

or Defluctions of the Eyes, how powerful in *Pluriſies*, and *Squinzies*, in *Tumours by Congeſtion*, *Gravel*, *Stone*, and *Ulcers of the Urinary Paſſage*, as recommended by the *Dr.* is a Subject foreign to the purpoſe, ſince this principle in the Waters is *not real*, but *imaginary*; I ſhall therefore omit it, till the *Dr.* ſhall deſcribe a Method of Obtaining a Matter from theſe Waters, without any Addition to them, that ſhall afford the true Signs, and Characteriſticks of an *Alkaline Salt*.

And how little this Water approaches either in Nature or Effects to the *Spaw*, (the Virtues of which the *Doctor* recites from his own Book, and which he ſays Page 46. "May with great Propriety and Juſtice be, "in many Inſtances, applied to this.") will appear to every one from the following Compariſon.

The *Spaw*, as to its *Contents*, he acknowledges *is* * *different* from theſe Waters. How then can he think its *Virtues* the ſame? The *Spaw warms* the Blood, and if not drank in too large a Quantity *binds* the Body and throws all the Humours from the *Center*

* See the *Doctor's* Book, Page 32, and compare it with Page 47.

to

to the Circumference, The *Stratford Water* on the Contrary, *cools* the Blood, and if not drank too Sparingly *opens* the Body, and draws all the humours from the *Surface* to the *Center*. Tho' 'tis true we often ſee Gentle Purging *throw*, the humours to the Skin, by unloading the Veſſells, and thereby reſtoring their *elaſtic Powers*, on which a good Circulation depends. But this is no more a Contradiction to theſe Waters drawing the Humours from the *Surface* to the *Centre*, than the Spaw Waters proving Purgative, when drank in too large a Quantity, is to their being *aſtringent* and *invigorating* to the Blood, which is a Truth evident to moſt People that have uſed them, as well as thoſe who are acquainted with the *Theory* and *Practice of Phyſick*.

And altho' ſome few diſeaſes may be removed either by *preſpiration or Stool*, yet ſome alſo there are, which tho' they may be Cured by the one, will be greatly Exaſperated by the other. Nay one and the ſame Diſeaſe ſhall often require, at different Seaſons and Stages of the Diſtemper, a different Method of Cure in one and the ſame Conſtitution, much more ſo in different Conſtitutions.

But if what the *Doctor* here endeavours to prove be right, that whether you give a

Purge

Purge or a *Aſtringent*, the Effect will be the ſame: how much Labour might the learned and indefatigable *Boerhaave* and other celebrated Writers have ſpared themſelves, in ſearching out the different Cauſes of Diſeaſes, that they might prove that great Maxim of *Hippocrates* to be true.

He who knows the Cauſe of a Diſtemper ſeldom fails in the Cure.

As to the Sentence which Dr. *Perry* puts into *Hippocrates*'s Mouth, † *Sublata Cauſa tollitur Effectus*, I wiſh I knew in what part of his Writings to find it. This puts me in mind of a ludicrous Paſſage, in one of Dr. KING's LETTERS, viz. *Sicut Glorioſe dicit Apoſtolus, veni, vidi, vici.*

But to examine further into the juſtneſs of the *Analogy* between the *Spaw* and *Stratford Mineral Waters* delivered by the Dr. Page, 48. tis altogether needleſs; ſince from what has been already ſaid, it appears, that they are widely different both in *contents* and *quality*, and conſequently muſt be ſo in their general Effects.

How far the *Doctor*'s Examination of the

† See the *Drs.* BOOK. Page, 35.

Spaw may be able to bear the teſt of a Judicious reading, more than his Examination of the Stratford Mineral Water, I know not; but as he ſays in his Analyſis of the Stratford Water, Page 47.

" They may therein find the *Effects and* " *Cures* perform'd by that celebrated Wa- " ter Phyloſophically accounted for and " explained, and perhaps *with the ſame de-* " *gree of Neatneſs, Perſpicuity, and Judg-* " *ment*," as he has done thoſe of *Stratford Waters*. I'm afraid few, who have ſeen the one, will from the *Drs. Encomiums* on the other, be induced to buy his Book.

But that we may not abſolutely contradict any ſort of Analogy between the Spaw and Stratford Mineral Waters, he ſays " *that things of Oppoſite Qualities and Eſſences are often found to produce a ſameneſs of Effect.*" Thus therefore we ſhould not be ſurprized to find an *Aſtringent* prove a *Purge*, and ſo on the contrary, and this we muſt allow, in the *Doctor*'s favour, is an Accident ſometimes met with, in the uſe of that renowned Medicine, the *Jeſuits Bark*; but then it does not from hence follow that we ſhould order the Bark *for a Purge*.

Indeed the *Doctor* owns * " it may by

* See the *Doctor's* Book, Page, 50.

ſome

" ſome be thought a Paradox, that our Mi-
" neral Water ſhould prove a Cure for Belly
" Fluxes ſeeing that it is of a contrary (*i. e.*
" Purging) Quality I will therefore (ſays
" he) take upon me to obviate and explain
" *this Myſtery*, and ſhew by what Means or
" Mechaniſm it cures theſe Diſorders: And
" having done thus much to ſatisfy the
" *Overſcrupilous* and Incredulous, I ſhall leave
" the learned and ingenious READER, to ac-
" count for the other Effects of it himſelf."

Now may we cry out with PETRONIUS:

Mens ſine Pondere ludit.

He gives a long, and as he calls it, Mechanical Account, how and by what means the impurities of the Blood, are by Nature at ſometimes depoſited on the Bowels, in ſo great a Quantity, as not only to cauſe an Evacuation but a *Debility* likewiſe: and at other times how the Qualities of the Juices lodged in the firſt Paſſages are ſo *Sharp*, as to irritate the Bowels to an *Expulſion*.

Thus therefore we have the ſame complaint (*i. e.* a Flux) proceeding from two different cauſes: a *Relaxation* of the *Solids* in the one and an *acrimony* of the *humours* in the other. Now muſt not any one be a Stranger to Phyſick, who knows not that

the *Spaw* and other *Corroboratives* are a cure for the firſt, and the *Stratford Medicinal Waters*, or other *gentle Purgatives* the beſt helps for the laſt: And tho' from hence we ſee Medicines of Oppoſite Qualities are a cure for one and the ſame complaint, yet let us not forget, that the Nature of the Diſeaſe, and the Intentions of cure in both are *widely different*.

But that we may be under no apprehenſions of danger, from the imprudent uſe of theſe Waters, the *Dr.* ſays, * in the one caſe 'twill anſwer by its *ſubtle fugitive Vitriol*, in the other by its *fix'd Mineral Salt*.

But as theſe two Properties exiſt at one and the ſame time in theſe Waters, when in their Perfection. I would ask the *Dr.* this Queſtion, how can we know which of theſe Properties will produce its Effect firſt?

When *v. gr.* to a Perſon in a Looſeneſs, I give a mixture of an *Aſtringent Iron* and a *Purging Salt*, which would Act firſt? I'm afraid the Purging Ingredient, becauſe Nature is much more eaſily aſſiſted then directed in her Efforts, according to that great Maxim.

Natura eſt Morborum Medicatrix,
Medicus Miniſter.

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* See the *Doctor's* Book, Page 53, and 54.

Therefore

Therefore the *Doctor* well obſerves ſome Aid may be required from the *Materia Medica.*

Now the *Doctor* having deſcribed the Virtues of the Mineral Contents exiſting in this Water *Separately conſidered*, he proceeds to declare the ‖ *whole Compoſition* to be good and proper for every Complaint, which each Separate Ingredient was reputed Effectual to Cure. Again he ſays, Page 55.

" This Water ſeems to be of a middle " Nature (not as to Temperament, but its " Qualities) between the *Thermæ*, or hot " Springs or the *Acidulæ*, or cold Springs, " of the chalybeate Kind. And hence this " Water may, in great Meaſure, anſwer the " Ends of both thoſe, at the ſame Time that " it has other Virtues and Qualities peculiar " and proper to itſelf.

Now I would ask the *Doctor* if any Man was to preſcribe a *neutral Salt*, inſtead of either *Alkali* or *Acid*, becauſe it is a compoſition of Both, whether he would heſitate one Moment to declare him ignorant of Medicine? I believe I may anſwer for him he would not; tho' he may do it with the ſame

‖ See the *Doctor's* Book. Page, 54.

degree

degree of Judgment, as to aſſign the ſame Qualities of each Ingredient in the Water ſeperately conſidered, to the *whole Compoſition* or the Virtues of the *Therma* and *Acidulæ* to the Waters, which are neither.

† The great Benefit *Mineral Waters* afford more than other Medicines, I believe (as well as the *Doctor*) are very Conſiderable, but were all *Mineral Waters* examined in the ſame manner with thoſe of *Stratford* I fear the Patients would find their *Bodily health*, as well as their *Purſes* in no better condition from the uſe of them.

* And howmuch ſoever the *Materia Medica may labour under a Prolixity, and a Prepoſterous Inconſiſtency*, I cannot be ſo much guilty of Flattery, as to ſay that I think the *Drs.* Treatiſe of Diſeaſes in General leſſens that Grievance, but if it does, tis in ſuch a manner as increaſes the hazard of the *Patients Life* by the violent Operation of the Draſtic Medicines therein preſcribed; Witneſs the *Glaſs* and *Flowers of Antimony*, *Euphorbium*, &c. which are very frequently recommended therein; tho' the moſt Experienc'd Writers decry their uſe, not only

† See Dr. *Perry's* Book. Page 56.

* See from Page 56, to 58.

as *hazardous* but *Deadly*: of this see *James's Physical Dictonary*, *where* speaking of Cathartics he says,

'The Operation of the more *acrid* and '*draſtic Cathartics* is ſo *violent dangerous* 'and ſometimes *fatal* the *prudent*, *rational* 'and *Cautious Phyſician* ought ſcarce ever 'to preſcribe them.' Tis confirm'd by Experience that in all Ages greater Havock or more terrible Conſequences have not been produced by any Medicines, than by *draſtic Purgatives*. And I myſelf, ſays *Hoffman*, who have practiced Medicine forty five years and upwards, have obſerved numberleſs Inſtances of Patients, who by the uſe of *draſtic Purgatives* alone have either contracted *incurable Diſorders or Died*.

Many other Quotations I might here bring from the moſt celebrated Writers in Medicine, but theſe I believe are ſufficient, to make all, who regard their lives, rather depend on the *Strength of Nature* than ſuch *Dangerous Medicines* for Relief.

Melius enim eſt ægrotare, quam tali Methodo ſanari.
Fernelius.

I wonder the *Doctor* ſhould advance Notions concerning the means uſed by Nature to impregnate Springs with Mineral Parti-

cles ſince he obſerves, ‖ *'tis not properly his buſineſs here*, and as 'tis deſcribed by † others in a more Plain, and eaſy Manner, he might have ſaved his READERS the trouble of paſſing over ſuch a Number of hard technical Words on that head to no purpoſe.

* And as to what *Thales* and other *Philoſophers*, as well as the Dr. *himſelf*, have imagined, concerning the *Primordia* or *Original Stamina* of all things being in *Water*, *Air* or *Fire*, tis ſo foreign to the Matter in hand that I ſhall not trouble my Readers with any *Criticiſms* thereon; Neither ſhall I make any Remarks on the *Cures*, which are ſaid by the *Dr.* to have been performed by the *Stratford Waters*, having no Intention to leſſen the Reputation of the Spring: for it would be diametically oppoſite to the Rules of the Society mentioned in my Preface, to advance any Arguments againſt *Matters of Fact*.

Beſides tis of little Conſequence to us whether the Dr. is, or is not right, in his *Theoretical Notions*, how and by what means this Water has become effectual in

‖ See the *Drs.* BOOK. Page, 57.
† See Dr. *Shaw* on Mineral Waters.
* See the *Drs.* BOOK. Page 59, to 63.

the

the ſeveral Diſeaſes tis ſaid to have vanquiſhed. I ſhall not therefore give myſelf the trouble to examine into this Matter, but Obſerve that, as the *Drs.* Arguments muſt be ſupported according to the known Properties of the *Waters Contents*, and as from what has been before ſaid, as well as from the following proceſs on the Waters, it appears that he is but little acquainted therewith, the whole of his Reaſoning muſt fall to the Ground.

In Anſwer to the *Doctor*'s Poſtſcript, I muſt Obſerve that, if he was afraid of an Anſwer, tis Pity but he had taken more time to finiſh his work, than it ſeems by his PREFACE he did. It was *not Six Weeks*, as he ſays himſelf, from his firſt Viſiting the Spring, to the Publication of his BOOK: this is not *Horaces* Rule of,

Nonum prematur in Annum.

As to his imagined Adverſary whom he charges with Selfiſh Views, I fancy he exiſted no where but in the *Drs.* own *Brain*; And for my part, the Subject of his BOOK would have prejudiced me in his Favour, had he left the many great Encomiums he has beſtowed on *himſelf*, and his *wonderful Performances*, to any other Pen but his

own: And, not with an imagined Self Sufficiency, concluded with a *Challenge* to an unknown Gentleman, after he had *Reflected* upon him, in a very free and ungentleman like manner.

It never was my Intention to Stigmatize the Reputation of the Waters, which the *Doctor* ſo much dreads, but rather to ſet their virtues in a *true Light*, and to prevent ſuch as are Strangers to Phyſical Studies, from being led into Errours by the *Doctor*'s *Eloquence.*

What the *Doctor*'s opinion may be of my Performance is to me of no great Moment, provided I have BOYLE, HOFFMAN, BOERHAAVE, and SHAW, on my ſide. And if the *Doctor* will not honour me with a Reply, becauſe he may deſpiſe my *Youth*, yet I Hope he will not deſpiſe the *great Names* above mentioned, by whoſe *Light I ſaw his Miſtake*, under whoſe *Banners I fight*, and with whoſe *Sheilds I ſhall endeavour to defend myſelf againſt him*, without the Aid of any other Director.

APPENDIX.

IN Order to find out what the Contents, of the Stratford purging Waters are, it will be proper, firſt to obſerve what Qualities they diſcover, by a bare examination of them with our *Senſes*, and next what Phænomena they exhibit on the Addition of various things at the *Spring Head*, compared (thirdly) with the various appearances, the ſame Additions afford, when the Waters have been taken from the Spring, and kept a *few Hours*; And laſtly, by the help of Fire, I ſhall endeavour to force them to a more ample Confeſſion of their Contents.

Theſe Waters at the Spring by their *Taſte* and *Smell* ſeem to be ſtrongly impregnated with a *Sulphur*; but when they have been kept a few Hours, this Quality is ſcarce perceptible to our Senſes. They drink much brisker at the *Spring*, then at a diſtance, are clear and pellucid to the *Eye* like *Rock-*

Water, and are at all times, and in all places, evidently poſſeſs'd with a *brackiſh Taſte*, like moſt of the Saline Springs in this Nation; and, as I am Credibly inform'd, this Water will keep many Months in Cloſe Stopt Bottles without Putrefying, which is no ſmall Evidence of their * *Purity* and *Wholeſomeneſs*, and is an Excellence; the *Cheltenham* and *Scarborough Spaws* have no claim to.

EXPERIMENT, *the firſt.*

I dropt three drops of Tincture of *Galls* into a glaſs of this Water, at the Spring, and it immediately acquired a *Purple Colour*. I dropt from three to twelve drops of the ſame Tincture into the like Quantity of the Water, that had been *kept a day*, and it afforded *no change of Colour*.

† 'This Experiment therefore may be depended upon without the Concurrence of any other, to prove that a *Vitriolic Principle*, of a *Volatile Fugitive Nature*, actually Exiſts in theſe Waters.'

EXPERIMENT, *the ſecond.*

I dropt three drops of Tincture of *Log-*

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* See Dr. *Shaw*'s Tranſlation of *Hoffman* on Mineral Waters. Page, 40.

† See *Shaw*'s Tranſ. of *Hoffman*. Page, 48.

wood

wood into a glaſs of the Waters at the Spring, and the ſame Quantity into a Glaſs of the Water that had been kept a day; the firſt immediately received a *fine Blue Colour*, the laſt a bright *Cherry Colour*, and by the addition of two drops of Spirit of *Sal armoniac* to the laſt, it acquired the ſame Complexion the firſt did without any addition.

EXPERIMENT, *the third.*

I mix'd half a dram of a good *Syrup of Violets* with a Glaſs of the Water at the Spring, and the like quantity of the ſame Syrup with as much of the Water, that had been kept a day, the firſt received a perfect *Green Colour*, the laſt did not in the leaſt alter the Blue Colour of the Syrup, more than the ſame quantity of common Water would have done.

The Phænomena theſe two Experiments afforded are ſufficient Evidences, for any one to conclude, that theſe Waters are poſſeſs'd with an *Alkaline* Property, which is *Volatile* as well as the *Vitriolic*, (or elſe that the *Vitriolic Property* itſelf, is *Alkaline* as well as *Volatile*,) and *Hoffman* ſays || however deſtructive *alkalies* may be thought to the texture

|| See *Shaw*'s Tranſlation on *Hoffman*, P. 140.

of

of *Vitriol*, daily Experience ſhows they may ſubſiſt together, and do in nearly all the *Cold Medicinal Springs*.

EXPERIMENT, *the fourth.*

A few drops of *Oil* of *Tartar* being dropt into a Glaſs of theſe Waters, they ſoon threw up a thin light cloud to the top, and remain'd perfectly clear underneath, as tho' nothing had been mix'd therewith. From whence we may reaſonably conclude, that theſe Waters have but a ſmall Portion of any *Earthy Matter* diſſolved in them, and are *light* and *eaſy of digeſtion.*

EXPERIMENT, *the fifth.*

A few drops of a *Solution of Silver* in *Aq. Fortis* being dropt into a glaſs of theſe Waters, it immediately turns *Milky*, and ſoon Precipitates the Silver to the bottom of the glaſs. Whence we may be well aſſured theſe Waters contain a Proportion of *Sea Salt*, for HOFFMAN aſſures us, that nothing but *Sea Salt* will produce theſe Effects.

EXPERIMENT, *the ſixth.*

Eighty Ounces of theſe Waters being diſtill'd to dryneſs in a Glaſs Retort with a

Sand-

Sand-heat there came over above ſeventy nine Ounces of *Pure Water*; and eight Scruples of a dry *Saline Matter* remain'd at bottom, which appear'd to the Eye like a well prepared Lapis Calaminaris, and was beſet thick with *Saline Particles*, like what we ſee in *Calomel*, when 'tis imperfectly levigated; it had a *Taſte* ſomewhat like Common *Salt*, diſſolved readily in the Mouth, and left a *Bitteriſh Flavour* on the Palate.

EXPERIMENT, *the ſeventh.*

Half a Pint of diſtill'd rain Water being poured on the Saline Reſiduum boiling hot, the greateſt Part ſoon diſolved, and a very ſmall Portion of it fell to the Bottom, which was ſeperated from it by paſſing the Liquor through a Filtre of Cap-Paper, and being dry'd it appeared to be an *Earthy Matter* in weight fifteen grains. The filtred Solution was of a very beautiful Amber Colour, and being exhaled in a clean diſh over a gentle heat, till a Pellicle appear'd on the top, I ſet it in a cold Cellar to Shoot, and obtain'd from it two drams and five grains of a pure white ſhineing Cryſtalline *Salt*, ſomewhat reſembling in figure the Calcarious *Nitre*, but more flat and tapelike, as Dr. SHAW deſcribes the Salt made from the *Scarborough Waters* to be, which he

ſays is a Salt referable to no known Claſs, but is *a neutral Salt ſui generis.* When theſe Salts were taken out of the diſh, there remain'd a liquor which afforded no Signs of Cryſtallization. This liquor I again evaporated to a Pellicle, and it afforded twenty five grains more of the ſame ſhaped Criſtals, but proportionally leſs in Size, as they were in quantity to thoſe obtain'd by the Firſt Evaporation; and after theſe Criſtals were all form'd, there remain'd a liquor, as there did after the firſt Cryſtallization, which afforded no ſigns of yeilding more Criſtals. This liquor I evaporated to dryneſs, and obtain'd from it eight grains of a Saline Matter which was very different in appearance to the before mention,d *Salts*, and to which for diſtinction Sake I ſhall give the Name of the *Second Salt.*

As the three firſt Experiments prove the exiſtence of a *Volatile alkaline Vitriolic Spirit* or *Salt*, ſo by theſe two laſt Experiments we ſee theſe Waters are ſeparated into four ſenſible and evident Parts (1.) *A Pure Elementary Water* (2.) *A Perfect Criſtalline Salt*, which is of the bitter neutral purging ſort, peculiar to Springs of this kind (3.) *A ſecond Salt* which is ſeemingly muriatic or Sea Salt and (4.) an hard *Earthy Matter*, each of which Principles deſerve a ſeparate Examination.

EXPERI-

EXPERIMENT, *the eighth.*

To the diſtill'd Water I added Tincture of *Galls*, *Logwood*, *Syrup* of *Violets*, and a *Solution* of *fine Silver* in *Aq. Fortis*, neither of which, manifeſted any other ſigns than diſtill'd rain Water would have done with the ſame Tryals, therefore I think it may not be improperly call'd a pure Elementary Water; and this Water Anſwers the ſame Purpoſes here which Dr. *SHAW* aſcribes to that obtain'd from the SCARBOROUGH by diſtillation, which he ſays, † 'ſerves as a 'Vehicle to the reſt of the Principles of the 'natural Water, ſo as to keep them diſ-'ſolved, or finely divided in their Particles, 'yet blended together, in an uniform, com-'pound, State; whereby the whole is fitted 'to enter all the Veſſels of the Body, capa-'ble of admitting them: whence the Mine-'ral Water is fitted to produce its Phyſical 'and Medicinal Effects.'

EXPERIMENT, *the ninth.*

The Cryſtallized Salts of this Water being expoſed in a *moiſt Air*, do not run or grow moiſt like *regenerated Tartar*, *Salt*

† See Dr. *Shaw's* attempt on the Scarborough Waters. Page, 103.

of *Wormwood*, and all the *Alkaline Salts*, but in a warm Room ſoon turn *White*, and looſe very much their *Tranſparency*, as *Glauber*'s Purging Salts do, but in a much leſs time, from whence, tis evident theſe Criſtals are not in the leaſt of the *Lixivial kind of Salts*.

EXPERIMENT, *the tenth.*

Some of theſe *Cryſtallized Salts* being placed on a *hot Iron Plate* inſtantly diſolve, riſe into *Bliſters*, and turn to a light ſpungy white *Calx*; without and Exploſion or Decrepitation, but being ſprinkled on a *hot Coal*, by joining with the *Sulphur* therein, they immediately make a loud noiſe, like the crackling afforded by *Sea Salt*, when Subjected to the ſame Experiment.

Whence tis evident theſe Salts partake ſomewhat of the Nature of *Sea Salt*, notwithſtanding Dr. *Perry* ſays, in his Obſervation on his third Experiment, *that the Salt of this Water is neither retaining to Nitre, or to the Sea, or Muriatic Salt.*

EXPERIMENT, *the eleventh.*

I mix'd half a Dram of this *Firſt Salt* in a dram of diſtill'd *rain Water*, and added to it a little Syrup of *Violets*, which received *no change of Colour*, neither did the like Solution

Solution ferment with *Oyl* of *Tartar*, or *Spirit* of *Vitriol*; whence we may very poſſitively aſſert, that tis a perfect *neutral Salt*, in regard either to *Alkali* or *Acid*.

EXPERIMENT, *the twelfth.*

A ſtrong Solution of this firſt Salt in Water turns *white* or *Milky*, upon the addition of a few drops of the *Solution of Silver* in *Aq. Fortis*, in the ſame manner as the natural Waters did. Therefore from this Experiment, and from this Salt crackling upon the hot coals, we may reaſonably conclude that ſome Particles of the *Sea Salt*, which this Water naturally contains, joyn themſelves with the *Neutral Salts*, and readily ſhoot with them in Criſtallization.

EXPERIMENT, *the thirteenth.*

I put ſome of the *ſecond Salt*, obtained from the Liquor, (which remain'd after the ſecond Criſtallization,) by Evaporation, upon a *hot Coal*, and it crackled like *Sea Salt*: I then put a drop of *Oyl* of *Vitriol* to ſome of the *ſame Salt*, and a *white pungent Vapour* immediatly aroſe, manifeſting the common Signs of *Sea Salt*.

Therefore from theſe five laſt Experiments conſider'd together, we have good grounds to conclude, that the Salts of the *Stratford*

Purging Waters, are a perfect *Neutral Salt*; partaking of a ſmall admixture of *Sea Salt*: The Virtues and Qualities of which will appear from the following Quotations, and may be much better approved than any Sentiments of my own.

† ‘ Not only in GERMANY but alſo in ‘ other Parts of EUROPE, ſuch as FRANCE ‘ and ENGLAND, there are cold medicinal ‘ Springs, remarkable for their *Cathartic* ‘ *Virtue*, and from which a bitter *Neutral* ‘ *Salt*, may be obtain'd by boiling, which is ‘ an Excellent Purgative.

‘ The Celebrated Dr. GREW informs us ‘ that theſe kinds of Salts when genuine are ‘ never deſtitute of a *Cathartic Quality*, and ‘ are an Efficacious Remedy in very violent ‘ diſtempers, without producing any other ‘ diſorder, if duly exhibited. He ſays further, ‘ that they are the mildeſt of all other Purgatives, and do not throw the humours into violent Commotions, but operate without produceing Sickneſs, Deliquium, or Gripes. and ſo not only powerfully, but eaſily and ſafely eliminate the Fæces.

† See, *James's* Phyſical Dictionary, under the Article *neutral Salts*.

‘ And

'And HOFFMAN in his *Clavis Schroderi-*
'*ana*, Names all the Salts of this tribe, and
'at the end ſays, one may be very properly
'uſed as a ſuccedaneum for another, for all
'of theſe exhibited in a moderate doſe, in
'ſome proper Vehicle, incide and diſſolve
'*viſcid Humours*, and by ſtimulating the
'excretory Ducts, not only preſerve the
'body *Soluble*, but alſo promote a diſcharge
'of the *Urine*. But when they are exhibited
'in a *larger doſe*, in a due Quantity of ſome
'*Aqueous vehicle*, they operate in the ſame
'manner with *cold medicinal Waters*,
'by procuring five or ſix Stools: for this
'reaſon when there is neceſſity for a Purga-
'tive, which Operates without producing
'any *ebullition* of the Blood, any *ſpaſmodic*
'*contraction* of the Inteſtinal Fibres, any
'*virulence* or *exacerbation* of the Vital
'Motions, theſe Salts are commodiouſly
'exhibited in a pretty liberal Doſe. But
'in a ſmaller Doſe any one of them mix'd
'with *Nitre*, *Salt* of *Tartar*, or *Crabs-*
'*Eyes*, affords an Aperient and Detergent
'Salt, of ſingular Efficacy in Medicine, and
'which may with uncommon Succeſs be
'exhibited, in all *intermittent Fevers*, *Hy-*
'*pocondriacals*, *Diſorder*, the *Stone*, the
'*Aſthma*, the *Flatulent Colick*. *Coſtiveneſs*,
'*Jaundice*, and *Cachexy*.

This

This therefore is enough to prove the Excellency of theſe kind of *Salts*, and may with great Juſtice be apply'd in recommending theſe *Waters*, ſince tis very Evident that the chief *Effects* and Excellency of *theſe Springs* reſide in their *Salts*, as they, when diſſolved in any other Water, operate nearly in the ſame manner as the *natural Waters* themſelves do.

And we have Reaſon to think this Water the better, and its effects to be heightened by the *Sea Salt* it contains, for Dr. *James* in his *Phyſical Dictionary*, under the Article *Neutral Salts*, ſays,

'Among all the Claſſes of *neutral Salts*, 'none is better ſuited or more friendly 'to the human body than *Common Salt*, 'neither human Creatures nor many other 'Animals can be without this Species of 'Salt, becauſe it not only ſeaſons their, ali-'ments, but alſo contributes to their *better 'digeſtion*, or *more intimate Reſolution*, and 'by ſtimulating the moving Fibres, and 'excretory Ducts compoſed of them, it not 'only *accelerates the Motion* of the Blood, 'and humours, by which means not only 'the groſſer parts are excellently tritura-'ted, and better mix'd with the more fluid

'Parts, but the Salutary Secretion, and ne-
'ceſſary excretions of Superfluous Subſtances
'are thereby *happily promoted.*

And Dr. SHAW ſays in his attempt on the SCARBOROUGH *Water.* 'That 'tis a 'known Character of *Sea Salt* to be pre-'ſervative, or in ſome degree preventive of 'Putrefaction, in certain Bodys, on which 'account it may be ſuſpected, that this is 'one Phyſical Uſe of it to the SCAR-'BOROUGH *Water,* and why not to the 'STRATFORD *Water.*

We now come to Conſider the *Earth* as the laſt fixed Content, in theſe Waters, and as it may by *ſome* be objected, that this Earthy Matter, is not a *ſtrictly ſimple Earth,* I will inſert what Mr. BOYLE ſays in his *Chymical Principles.* 'It does not 'appear that Nature any more than Art 'affords any Elementary Earth: at leaſt 'ſome which appears of the ſimpleſt ſorts, 'is found upon Examination to have *Quali-'ties not aſcribed to pure Earth.*' But this indiſolveable Matter, which I call Earth, which the STRATFORD Waters afford upon Evaporation, when Examined by the naked Eye, is of a Browniſh white Caſt, and appears under the Microſcope, like the *Cala-mine Stone* prepar'd, but rather brighter colour'd, and it proved itſelf of an *Alkaline*

Nature

Nature with Syrup of *Violets*, Oyl of *Vitriol* and ſeveral other Tryals, but the proportion of this Earth to the Water is ſo extreamly little, it can neither add much to, or dimminiſh from the Virtues and Qualities of the other Principles in the Water; but where a *Large Quantity* of it is diſolved in any *Water*, it renders it apt to cauſe Obſtructions in the finer Veſſels, whence the fullneſs of the Head and conſequent upon drinking the Waters of ſeveral famous Springs, (in which this Earth abounds,) is produced, the STRATFORD *Waters* therefore are moſt Excellent, as having *leſs* of it than any other Saline Springs we know of. And tho' this Principle in the Waters is ſo pernicious when ſeperatly conſidered, yet probably 'tis from this *Earth*, and a *Mineral Acid*, that the *Neutral Salts* of this Water are form'd, ſince from Ingredients of a like Nature, a neutral Salt may be eaſily obtained by the aſſiſtance of Arts, which will be capable of producing the ſame Effects on the Body, as the Salts of theſe Waters do.

On the whole theſe Waters may prove exceeding powerful either in *opening Obſtructions*, *correcting* and *diſcharging Peccant Humours*, and *ſtrengthening* the *Fibres*. For by means of their mild penetrating,

and

and deterſive *Salts*, they diſſolve the *ſtagnant humours* in the Canals, take of the *ſharpneſs* of the *Juices*, and break the *coagulations* and *Viſciditys* of the *Blood*, and diſcharge the *offending humours* by their proper Outlets. They likewiſe by the Quantity of *pure Elementary Water* they contain, dilute, prepare, correct and waſh away the *Crude* and *Ill concocted Juices*, diſſolve their *Salts*, and blunt their *force*, and at the ſame time by means of their *ſubtle, volatile, Alkaline and Vitriolic Gaſs, or Spirit*, they reſtore a *due tone*, and ſpring to the *weaken'd Solids*, and thus nobly promote the buſineſs of Circulation, and prevent a depreſſion of the Patients *Strength*, under a continued Courſe *Evacuations*; which cannot with ſo much Juſtice be ſaid, of the moſt renown'd Compoſition of the Shops.

It may be here expected I ſhould enumerate all the diſeaſes, in which theſe *Waters*, or a *Medicine* endued with the Qualities of the Contents evidently exiſting in them, might be ſucceſſfully adminiſtred, but that is a Work quite different to an ANALYSIS, however proper it may be to be annex'd to one, and as BOERHAAVE ſays, ſpeaking of Inflamations. *Aphor.* No. 394.

'That a different Method of Cure is ne-
'ceſſary, according to the different State and
'Condition of the diſeaſe.' And again on the *Peripneumony*. *Aphor.* No. 849.

'The Method of cure is to be varied, ac-
'cording to the different State of the Illneſs,
'and the variety of Symptoms, ſo that
'what may do ſervice at one time, may do
'damage if apply'd at another improper
'time.'

I ſhall omit it: leaſt any one ſhould imprudently enter upon a Courſe of theſe Waters, to their Prejudice, through a Miſtaken knowledge of their own Complaints at the time of drinking them, from which the reputation of the ſpring will be always in greater danger, than from any *Ill Quality* in its *Medicinal Principles*.

I would therefore adviſe every one, who is deſirous of trying its Efficacy, to conſult ſome knowing Perſon in the Practice of Phyſick, whether the Waters are proper, or improper in their diſorders, and be directed by him in what *Quantity*, at what *Intervals*, and with what *other Aſſiſtance*, they may ſooneſt attain their wiſh'd for Effects, for according to the variation of theſe Circumſtances, the Effects will be undoubtedly varied, not only of theſe *Waters*, but of all *other Medicines*, and by a thorough know-

ledge

ledge of theſe things, they may be often rendred ſerviceable, in Caſes, where the general uſe of them may be very prejudicial; for Succeſs in Medicine depends much more upon the *Doſeing*, and *Method of exhibiting* any Medicine, than on the knowledge of the Compoſition itſelf, which the daily practice of every *Experienced Phyſician* undeniably proves to be *true*.

THE END.

ERRATA.

I having never been employ'd to *Publiſh* any thing before this PAMPHLET, 'tis hoped the READERS will excuſe the inaccuracies of the *PRESS*, and correct the following *ERRATA*'s with their *Pens*.

Page. 4. *line* 13. *for* found *read* formd. P. 6. *l.* 4. Exhalted *r.* exhaled. P. 6. *l* 6. belive *r.* believe. *l.* 7. Criſtalization *r.* Chriſtallization, P. 9. *l.* 3. efferveſcence *r.* efferveſce. P. 13. *l.* 10. alkeline *r.* Alkaline. *l.* 19. that is *r.* that it is, P. 15. *l.* 5. preceived *r.* perceived. P. 16, *l.* 8. others *r.* other. P. 17. *l.* 4. exſpected *r*; expected. P. 22. *l.* 10. never *r.* ever. *l.* 16. Pelicle *r.* Pellicle. P. 26. *l.* 14. perceptable *r.* perceptible, P. 39. *l.* 22. Effervecene *r.* Efferveſcence. *l.* 26 neceſſariio *r.* neceſſariis. P. 40. *l.* 20 Efferves'd *r.* Efferveſc'd. P. 49. *l.* 24. conſiſt *r.* conſiſts. P, 54. *l.* 6. Exiſtance *r.* Exiſtence. P. 59. *l*, 9. Overſcrupilous *r.* Overſcrupulous. P, 74. *l* 12. and *r.* any. P. 77. *l.* 28 Hypocondriacals, diſorders *r.* Hypocondriacal Diſorders. P. 80. *l.* 7. diſolved *r.* diſſolved. *l.* 10. and *r*, &c. *l.* 22. arts *r.* art. P. 82. *l.* 11. and *r.* any.

THE *PRINTER*, TO THE READER.

WHEREAS it has been induſtriouſly reported by ſome prejudiced *People*, that I have no TYPES but what are worn out, and unfit for uſe; 'tis hoped the Publication of this PAMPHLET, will not only convince the *World* of the *Falſeneſs of that Report*, but encourage others to ſend employ to my PRESS, where due care ſhall be taken and the favour acknowledged,

by

their humble ſervant,

Tho. Paſham.